DEPARTMENT OF DEFENSE APPROPRIATIONS FOR FISCAL YEAR 1983

HEARINGS

BEFORE A

SUBCOMMITTEE OF THE COMMITTEE ON APPROPRIATIONS UNITED STATES SENATE

NINETY-SEVENTH CONGRESS

SECOND SESSION

Part 2—(Pages 1–553)

MX Programs
NATO and Global Commitments
Navy Shipbuilding and Overhauls
Space Systems

Printed for the use of the Committee on Appropriations

U.S. GOVERNMENT PRINTING OFFICE
92-384 O WASHINGTON : 1982

For sale by the Superintendent of Documents, U.S. Government Printing Office
Washington, D.C. 20402

S181-37

COMMITTEE ON APPROPRIATIONS

Subcommittee on Department of Defense

TED STEVENS, Alaska, *Chairman*

LOWELL P. WEICKER, Connecticut
JAKE GARN, Utah
JAMES A. McCLURE, Idaho
HARRISON "JACK" SCHMITT, New Mexico
MARK ANDREWS, North Dakota
ROBERT W. KASTEN, Jr., Wisconsin
ALFONSE M. D'AMATO, New York
WARREN RUDMAN, New Hampshire
MARK O. HATFIELD, Oregon (Ex Officio)

JOHN C. STENNIS, Mississippi
WILLIAM PROXMIRE, Wisconsin
DANIEL K. INOUYE, Hawaii
ERNEST F. HOLLINGS, South Carolina
THOMAS F. EAGLETON, Missouri
LAWTON CHILES, Florida
J. BENNETT JOHNSTON, Louisiana
WALTER D. HUDDLESTON, Kentucky

Staff

Dwight E. Dyer, Susan E. Shekmar, Wayne A. Schroeder, and Sean O'Keefe

Minority Staff

Frederick W. Rhodes

CONTENTS

WEDNESDAY, MARCH 31, 1982

MX missile program:

Page
Department of the Air Force 1
Under Secretary of Defense for Research and Engineering 23

WEDNESDAY, APRIL 21, 1982

U.S. global military commitments:

Deputy Secretary of Defense 105

Nondepartmental witnesses:

Institute for Foreign Policy Analysis 135
National Security Consultant 145
Former Assistant Director, Arms Control Agency 160

THURSDAY, APRIL 22, 1982

U.S. global military commitments (NATO):

Assistant Secretary of Defense for International Security Policy 201

Nondepartmental witnesses:

Institute for Foreign Policy Analysis 239
Former Ambassador and NATO Affairs Adviser 246

WEDNESDAY, APRIL 28, 1982

Space systems:

Command, control and communications (C^3):

Defense Advanced Research Projects Agency 291
Deputy Under Secretary of Defense for Command, Control, Communications and Intelligence 291

THURSDAY, APRIL 29, 1982

Intelligence overview:

Deputy Director of Central Intelligence 405

WEDNESDAY, MAY 5, 1982

Navy shipbuilding and overhauls:

Department of the Navy 407
Naval Sea Systems Command 435
Naval operations (surface warfare) 449

DEPARTMENT OF DEFENSE APPROPRIATIONS FOR FISCAL YEAR 1983

WEDNESDAY, MARCH 31, 1982

U.S. SENATE,
SUBCOMMITTEE OF THE COMMITTEE ON APPROPRIATIONS,
Washington, D.C.

The subcommittee met at 9:05 a.m. in room 1224, Everett McKinley Dirksen Senate Office Building, Hon. Ted Stevens (chairman) presiding.

Present: Senators Stevens, Andrews, Kasten, and Rudman.

DEPARTMENT OF DEFENSE

DEPARTMENT OF THE AIR FORCE

STATEMENT OF LT. GEN. KELLY H. BURKE, DEPUTY CHIEF OF STAFF, RESEARCH, DEVELOPMENT AND ACQUISITION

ACCOMPANIED BY BRIG. GEN. JAMES P. McCARTHY, SPECIAL ASSISTANT FOR MX, DEPUTY CHIEF OF STAFF, RESEARCH, DEVELOPMENT AND ACQUISITION, HEADQUARTERS, U.S. AIR FORCE

MX MISSILE PROGRAM

BUDGET REQUEST

Senator STEVENS. Good morning, Generals, Dr. Wade.

I believe each member that is here has read the statements that have been presented, I have. We have scheduled this morning a hearing on the MX missile program request. We are here not only to examine the funding requirements, but to consider the fundamental need for the MX missile and its survivability under different basing options.

This year's budget includes a grand total of nearly $4.3 billion for the MX program. That includes $2.8 billion to continue research, development and testing and $1.5 billion for missile procurement. In addition to that, $236 million for military construction is included in a separate appropriations bill.

Within the funding for research and development, $1.7 billion is for missile development and testing. Another $715 million is for near-term basing and $310 million for long-term basing and R. & D.

For procurement, the $1.5 billion request includes nearly $900 million for the start of missile production work and $600 million for basing equipment.

The President's budget includes $860.5 million for the Army's ballistic missile defense programs. The fiscal year 1983 request for the BMD systems technology is $727.3 million, an increase of $390.7 million over fiscal year 1982. The BMD advanced technology program funding request is $143.2 million, an increase of $16 million over fiscal year 1982. The fiscal year 1983 request for the Kwajalein Missile Range is $152.1 million.

FISCAL YEAR 1983 FUNDING REQUEST

We want to ask the Department to insert a copy of its MX funding request for 1983 in the hearing record this morning.

[The information follows:]

MX FUNDING REQUEST FOR FISCAL YEAR 1983

The MX funding request for fiscal year 1983 is:

	Million
R.D.T. & E.	$2,759.3
Procurement	1,497.1
MILCON	236.0

SLIDE PRESENTATION

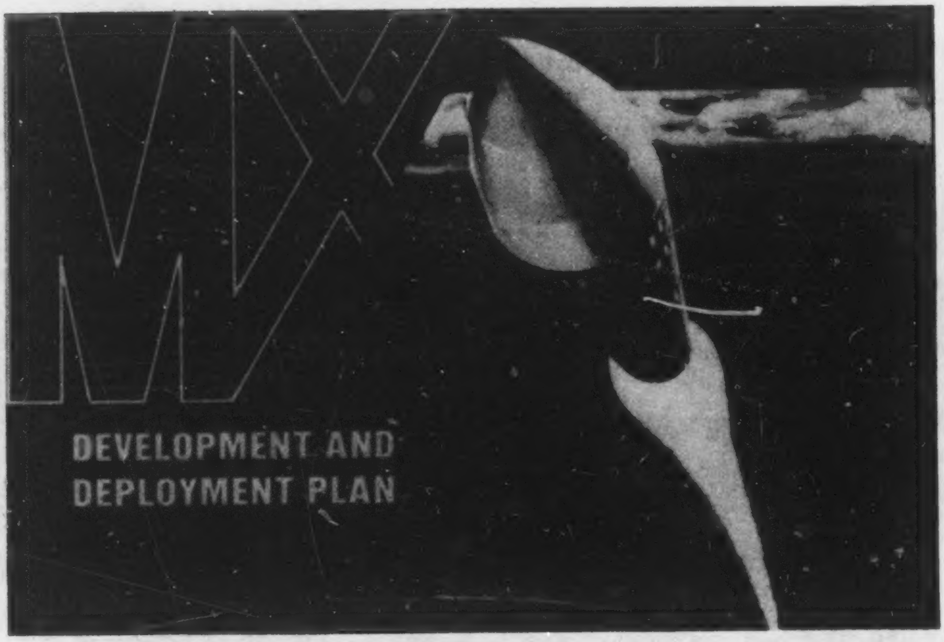
Senator **STEVENS**. Gentlemen, I am going to have to go to a meeting right after the slide presentation. I do hope that we will have a few minutes for questions. I think the rest of the committee members want to know how you interpret the action that has been taken by the authorizing committee.

We also want to know what will be the impact on the MX program if the current nuclear freeze resolution proposal is adopted, and we would like to know what is going to be the cost of storing the MX's if the basing option selected by the administration is not immediately approved by the Congress.

It appears to us that there are some contingencies involved in this program that have the impact of ever increasing its cost. Without regard to what the authorizing committee may do, this committee may not make funds available for the MX until the basing mode decision is made and approved by Congress.

Now, we will be pleased to have your slide show. I hope that it is not too long, because, unfortunately, I must leave. My colleagues will continue the hearing, and there will be others coming. I know that Senator Rudman has agreed to stay for the entire hearing.

So, could we have the slide show that you have prepared, please?


MX

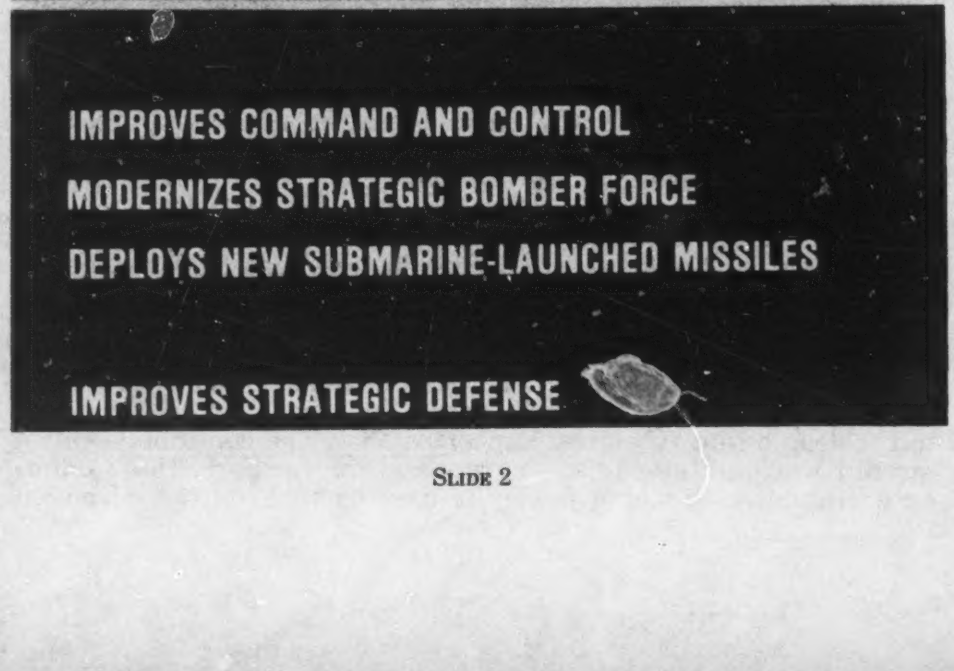
DEVELOPMENT AND
DEPLOYMENT PLAN

Slide 1

DEVELOPMENT PROGRAM

General **Burke**. I will try and do this rather quickly, Mr. Chairman. This is a review of the MX development program that the Air Force and the Department of Defense have put together, both the missiles and basing mode. I think that it provides a good background.

[redacted]


IMPROVES COMMAND AND CONTROL

MODERNIZES STRATEGIC BOMBER FORCE

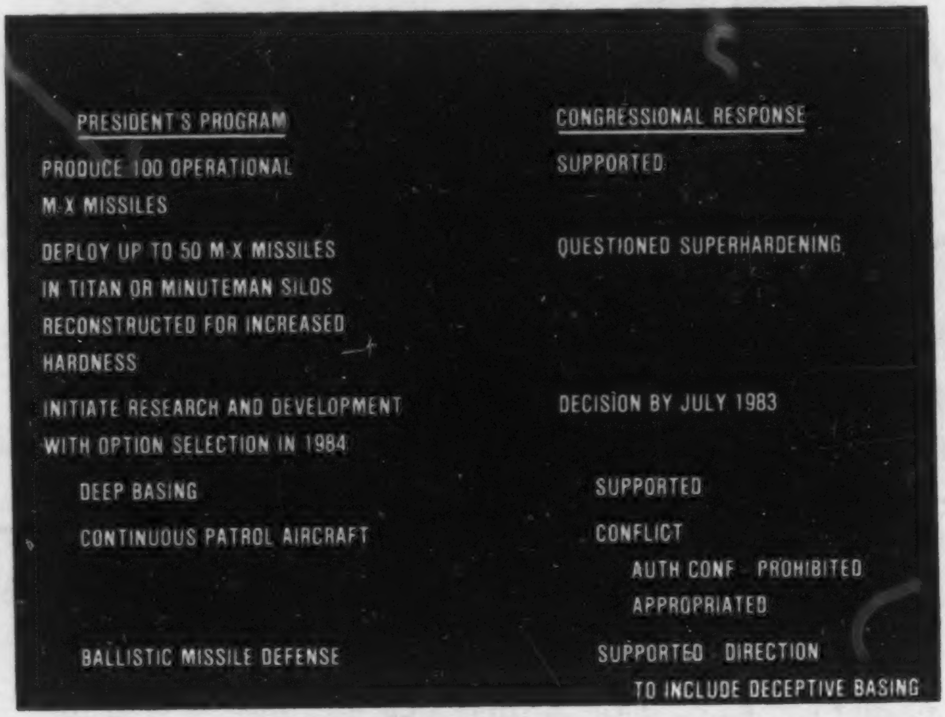
DEPLOYS NEW SUBMARINE-LAUNCHED MISSILES

IMPROVES STRATEGIC DEFENSE

Slide 2

PRESIDENT'S STRATEGIC MODERNIZATION PLAN

The ICBM program, of course, was one of the five elements in the President's strategic modernization plan announced last October 2. I will be talking about the details that were included in that.



PRESIDENT'S PROGRAM	CONGRESSIONAL RESPONSE
PRODUCE 100 OPERATIONAL M-X MISSILES	SUPPORTED
DEPLOY UP TO 50 M-X MISSILES IN TITAN OR MINUTEMAN SILOS RECONSTRUCTED FOR INCREASED HARDNESS	QUESTIONED SUPERHARDENING
INITIATE RESEARCH AND DEVELOPMENT WITH OPTION SELECTION IN 1984	DECISION BY JULY 1983
DEEP BASING	SUPPORTED
CONTINUOUS PATROL AIRCRAFT	CONFLICT AUTH CONF PROHIBITED APPROPRIATED
BALLISTIC MISSILE DEFENSE	SUPPORTED DIRECTION TO INCLUDE DECEPTIVE BASING

SLIDE 3

CONGRESSIONAL RESPONSE TO PRESIDENT'S PROGRAM

This outlines what the President proposed, and this outlines how Congress responded to each of the proposals during the 1982 authorization and appropriations process.

The President said we should build 100 operational missiles; Congress agreed to that. He said we will, as an interim measure, deploy up to 50 of those MX's in the existing silos constructed for increased hardness; Congress questioned the value of that extra hardening and indeed we are now working toward a silo that has less hardening than superhard.

For the longer term the President said we should begin R. & D. on three survivable long-term basing modes—deep basing, continuous patrol aircraft, and ballistic missile defense—leading to a decision in 1984.

Congress judged that this was too long to wait for a decision and we ought to be able to make a decision in the summer of 1983. The administration agreed to work within that timetable. With regard to the deep basing, Congress supported that. The continuous patrol aircraft was questioned by Congress and the Authorization Conference prohibited spending money to develop this concept, although the Appropriations Committee provided $10 million for it. This amount is included in the discussion underway now on the money that was appropriated, but not authorized.

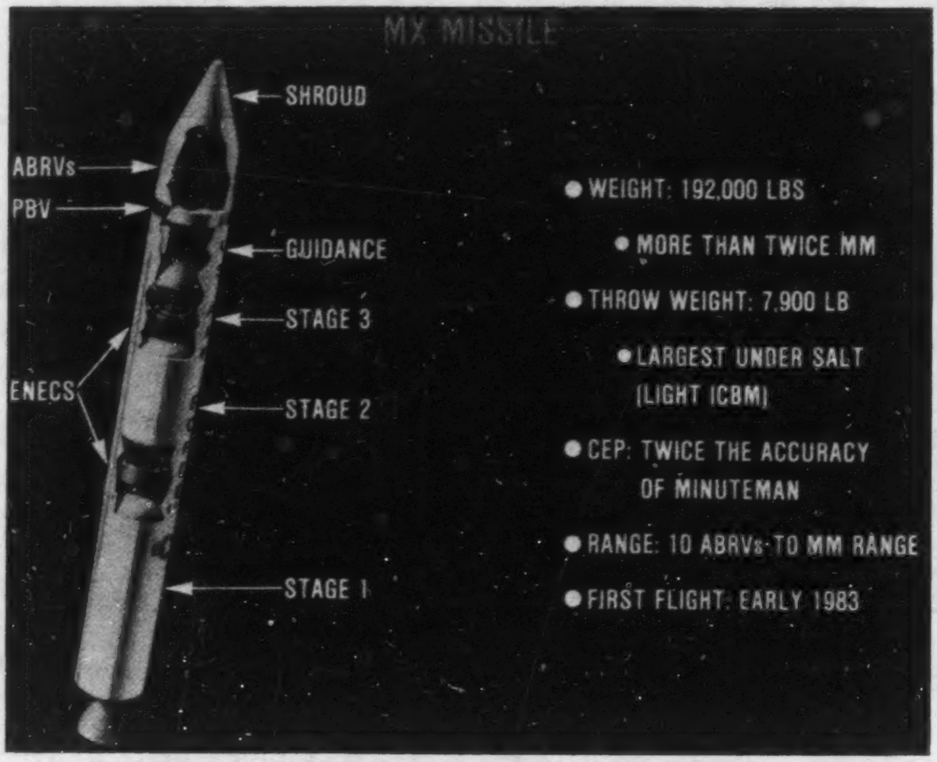
Finally, comes the area of ballistic missile defense. The Congress supported it, but added money and directed us to include as an integral part of that effort deceptive basing to provide additional leverage. That is where we began the fiscal year.

OVERVIEW

Near term plan: Missile; basing; schedule; and cost.
Long term plan: Concepts and process.

Taking the President's plan and considering congressional guidance, we put together a near-term plan and longer-term plans. The latter of course were focused on developing a survivable basing mode.

NEAR TERM PLAN



MX MISSILE

- WEIGHT: 192,000 LBS
  - MORE THAN TWICE MM
- THROW WEIGHT: 7,900 LB
  - LARGEST UNDER SALT (LIGHT ICBM)
- CEP: TWICE THE ACCURACY OF MINUTEMAN
- RANGE: 10 ABRVs TO MM RANGE
- FIRST FLIGHT: EARLY 1983

SLIDE 4

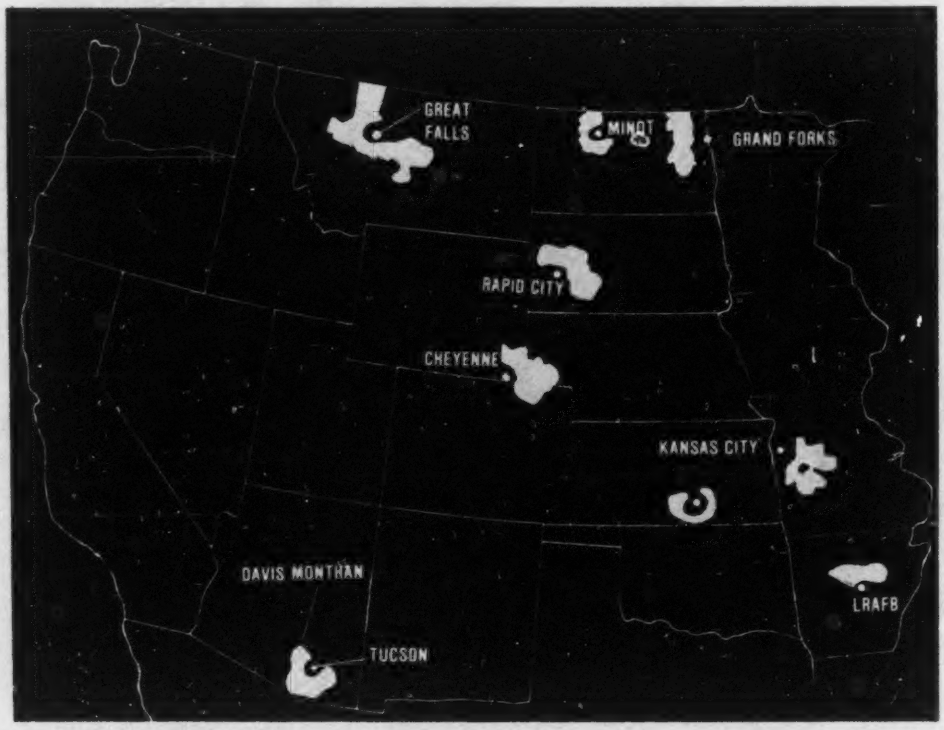
SUCCESSFUL MISSILE PROGRAM

For the near term, the missile effort continues very successfully. MX categorized by SALT provisions as a light ICBM, is limited in throw weight to that of the SS-19. The MX is more accurate than the Minuteman, and it carries 10 reentry vehicles to the desired ranges. We are working toward the first test flight inearly 1983.

The first three stages of the missile contain solid fuel propellents while the fourth stage carrying the reentry vehicles, has liquid propellents.

We have been developing the missile since the fall of 1979. We have now successfully test fired, all four stages. The guidance is coming along quite well, and I can report to you at this point that the missile development is proceeding on a very solid basis; it is on time; and it is on cost. Further, it is meeting its technical objectives, and we see no major problems.

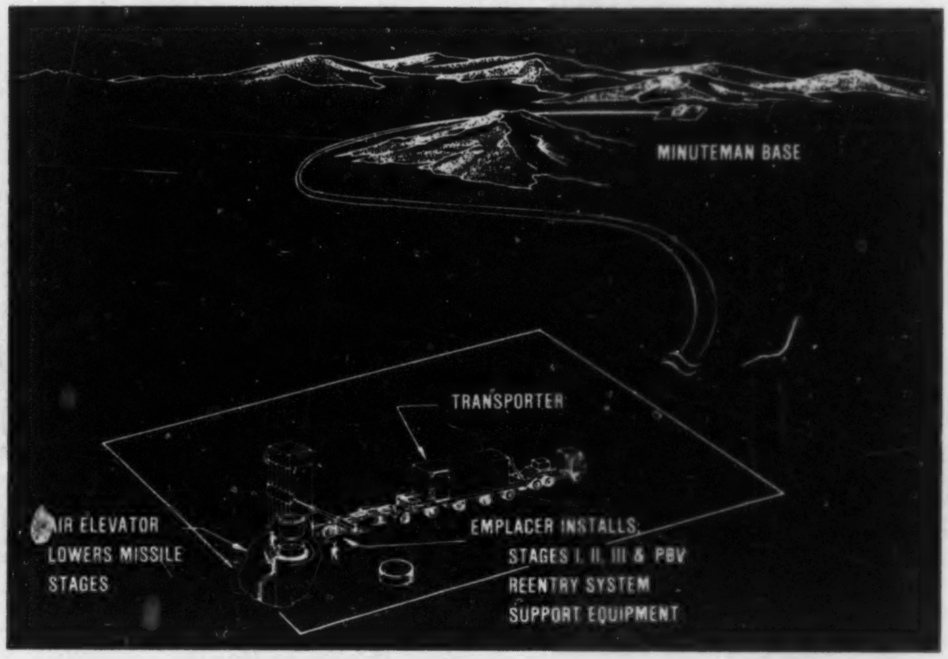
MX SILO BASING



Slide 5

TITAN/MINUTEMAN SILO BASING

Now I would like to turn to the question of putting these missiles in silos in the near term as an interim measure. The President's announcement addressed both Titan and Minuteman silos. The Secretary of Defense, after reviewing both approaches, came to the conclusion that the Minuteman locations would be preferable to Titan. Adopting the Titan silos tends to be more expensive and less compatible with the ballistic missile defense. The three Titan fields are shown in yellow. We are now in the process of narrowing down to which Minuteman silos are suitable for MX deployment. The six Minuteman fields are located in the Northcentral United States. We hope to have this narrowing process completed in the near future.


MINUTEMAN BASE
TRANSPORTER
AIR ELEVATOR LOWERS MISSILE STAGES
EMPLACER INSTALLS:
STAGES I, II, III & PBV
REENTRY SYSTEM
SUPPORT EQUIPMENT

SLIDE 6

ROAD UPGRADING TO HANDLE HIGHWAY TRANSPORT

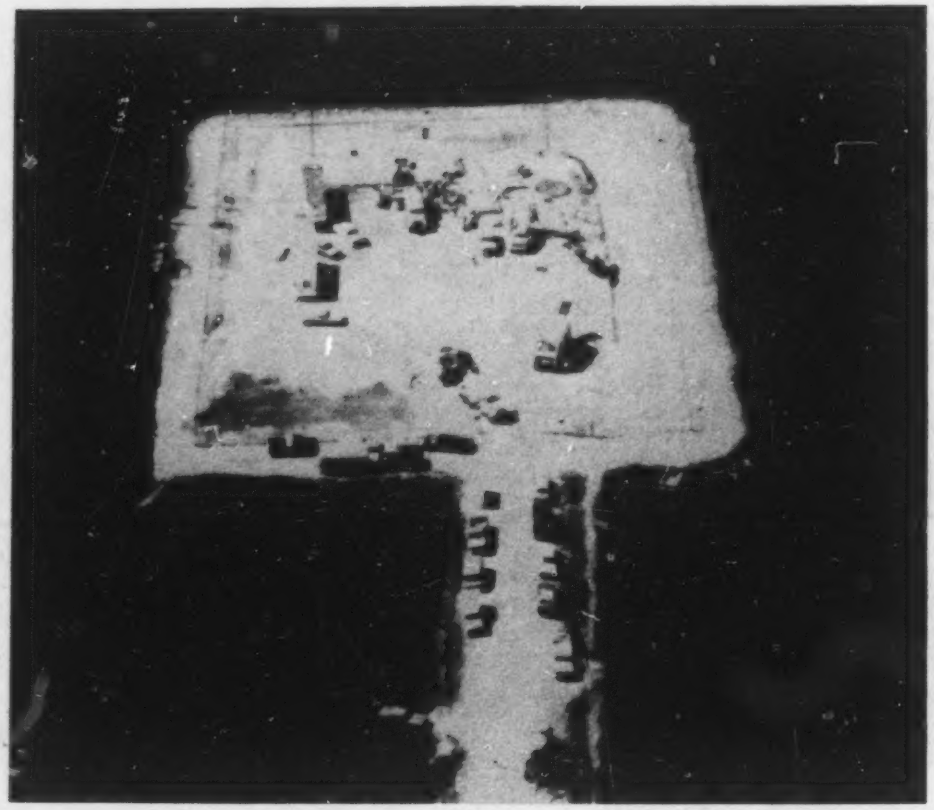
In order to put 40 MX missiles in existing Minuteman silos, we will have to transport them to the site unassembled because the missile, once assembled, would be too heavy for ordinary roads and bridges. In fact, the first stage alone weighs 110,000 pounds. Once it is placed on a vehicle the gross weight is approximately 150,000 pounds. Consequently, some roads and bridges may require upgrading depending on the silos ultimately selected.

But the idea is that, having first emplaced the canister in which the missile will be housed in the silo, the missile will be assembled by stages inside and one by one we will put those stages on there and canister. As the stages are emplaced, they will be lowered and the next stages added until the missile has been fully assembled. This is about a 10-day process.

SLIDE 7

AREA-COMPATIBLE SITES

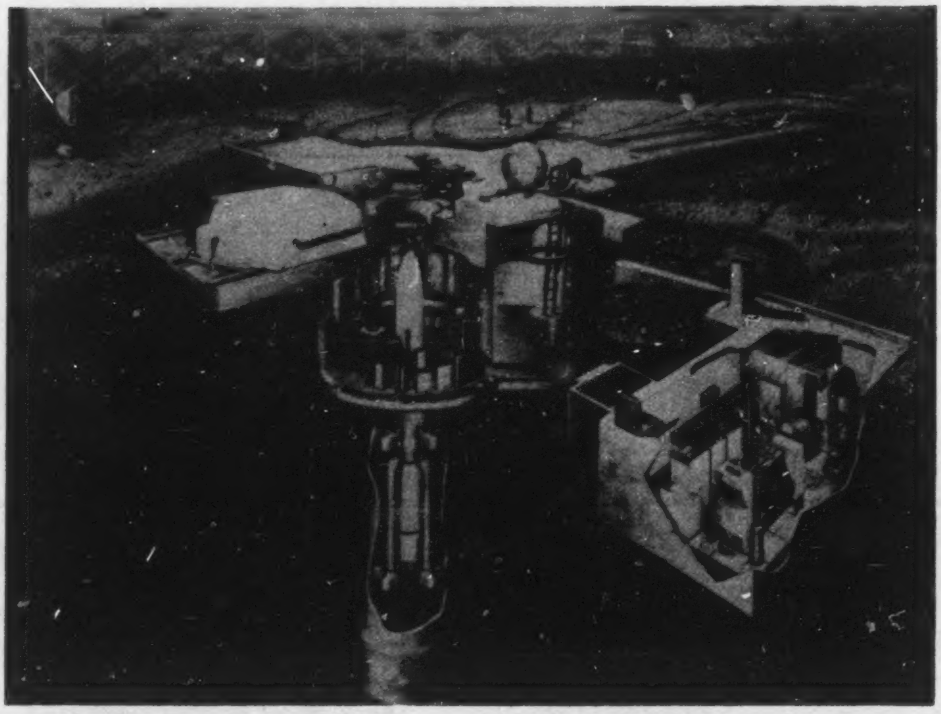
Shown here is an existing Minuteman site, it is comprised of about two and-a-half fenced acres. You can see crops grow and cattle feed right up to the fence. All of the work associated with the MX modification will take place inside the existing fence and when modifications are complete, it would not be apparent to the eye that any change had taken place.



SLIDE 8

SILO HARDNESS

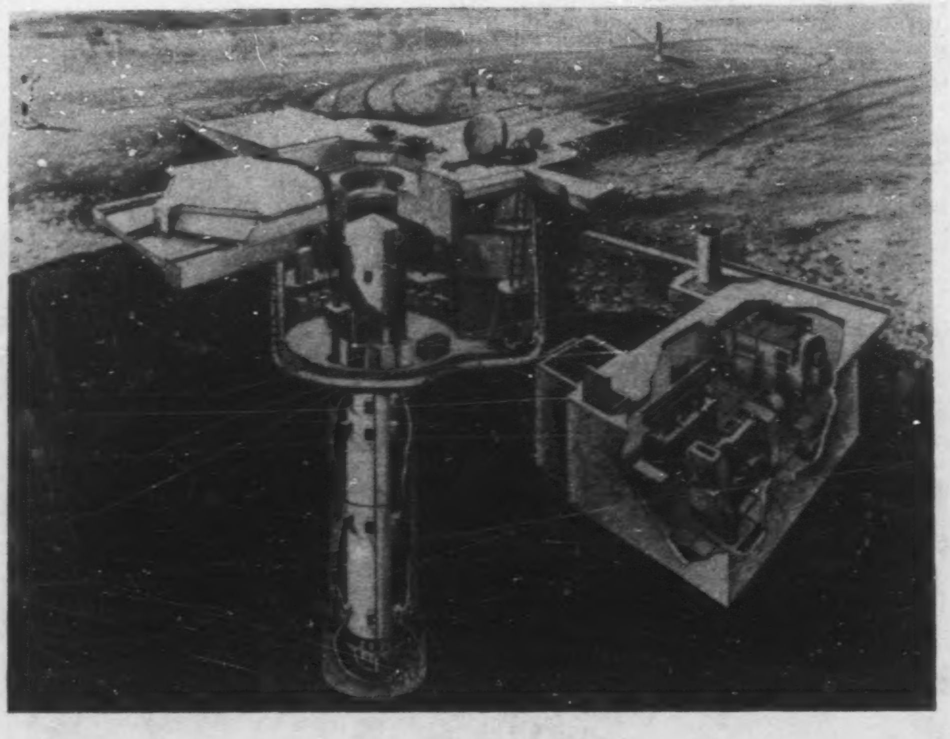
A few years ago we did a program that increased the hardness of the existing Minuteman silos, called the silo upgrade program. This is a photograph that was take at that time. It shows you the amount of work underway, in terms of vehicles and people. We would expect this conversion for MX to be no larger an effort than this. As you can see, it is a fairly modest operation.



Slide 9

SHOCK ISOLATION SYSTEM

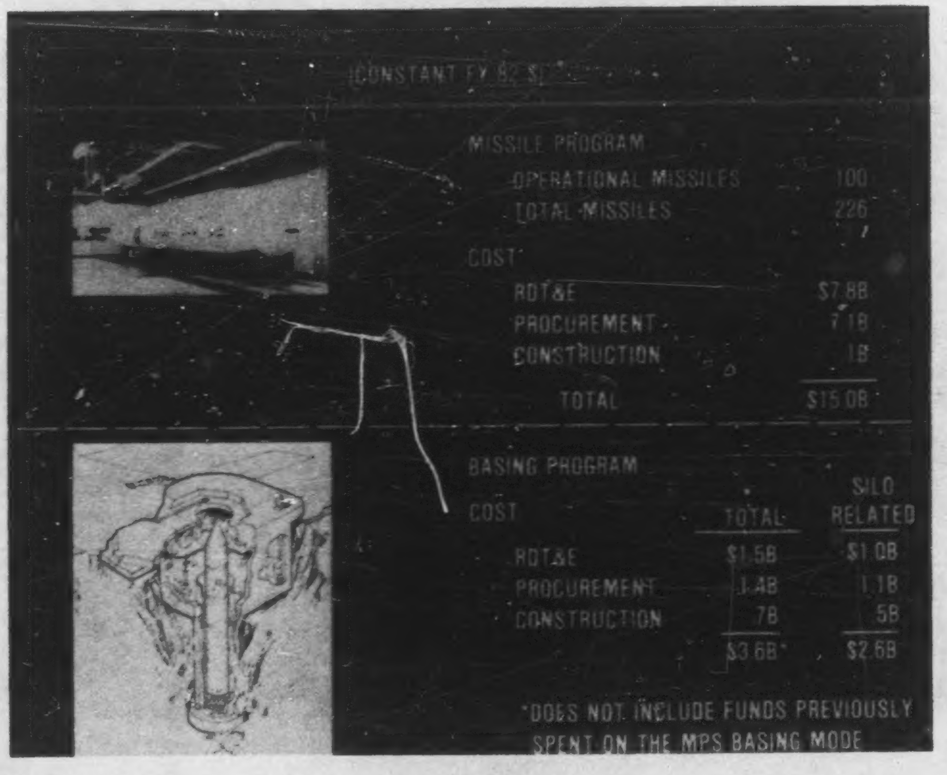
This is a depiction of the Minuteman in that silo as it is today. The Minuteman is held in place by a shock isolation system which gives it some resistance to blast damage. We would plan when we put MX missiles into these silos, not to get to the superhard levels, but rather to accept the inherent hardness that results. We think it will come out about the same as we currently have for the Minuteman.



SLIDE 10

CANISTERIZED MISSILE

So, we will make minimum changes to the silos for MX and, in fact, once modifications are complete, they will look something like this. The big changes being that we will now have a canisterized missile and will have added quite a different shock isolation system. There are also a lot of electronic and environmental control system changes. They are not apparent from the drawing.



(CONSTANT FY 82 $)

MISSILE PROGRAM

OPERATIONAL MISSILES	100
TOTAL MISSILES	226

COST	
RDT&E	$7.8B
PROCUREMENT	7.1B
CONSTRUCTION	.1B
TOTAL	$15.0B

BASING PROGRAM

COST	TOTAL	SILO RELATED
RDT&E	$1.5B	$1.0B
PROCUREMENT	1.4B	1.1B
CONSTRUCTION	.7B	.5B
	$3.6B*	$2.6B

*DOES NOT INCLUDE FUNDS PREVIOUSLY SPENT ON THE MPS BASING MODE

Slide 11

COST BREAKDOWN

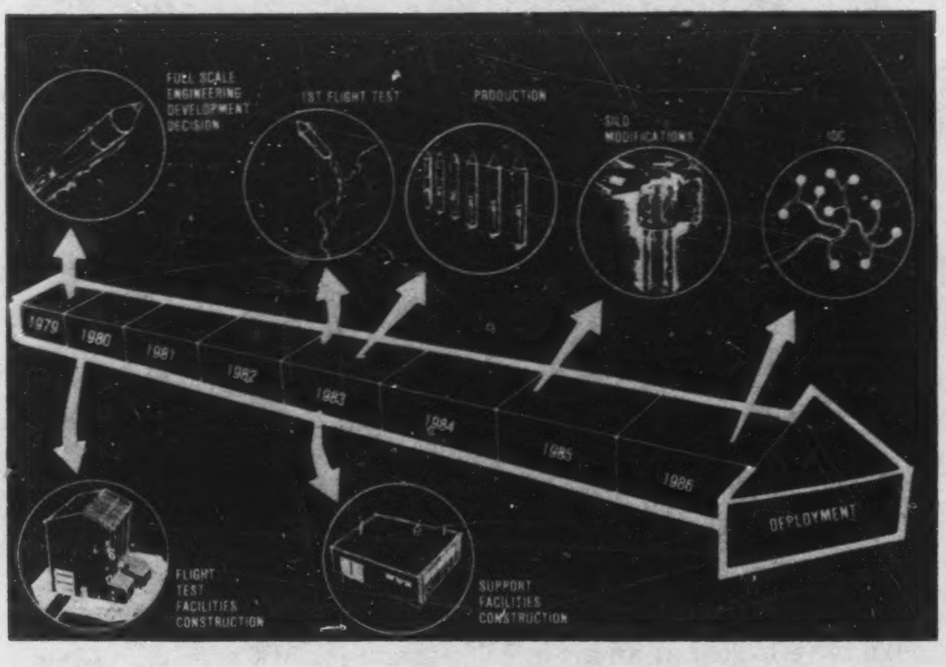
We are often asked, what does all of this cost and how do you divide the cost between the missile and the basing? We have tried to break these costs down in this chart. The chart shows that the costs to develop and procure the missiles and do a small amount of construction at Vandenberg Air Force Base for testing, are about $15 billion in constant 1982 dollars. This buys 226 missiles, a hundred of which would become operational, 108 of which would be reserved for continued testing over the life of the system; and the remainder would be for spares, aging survivability testing, wear-outs and that type of thing.

The $15 billion program then is to develop and build the missiles. We have about $3 billion spent, so there is about $12 billion left to go.

We estimate the cost of putting 40 MX missiles in Minuteman silos, to be approximately $3.6 billion divided as shown between research and development, procurement and construction. However, for completeness I would like to point out that I have excluded from that sum $700 million that has already been spent for the abandoned MPS system. We will recover some of that.

But of that $3.6 billion, about $1 billion would be required for depot facilities and training facilities, and for other needs that are independent of silo basing. If, for instance, we were immediately to go to deep-underground basing or continuous patrol aircraft, we would still spend that $1 billion. So, you can—I think reasonably—

say that the cost of putting the 40 missiles in Minuteman silos is about $2.6 billion which is quite a large sum. I believe that is about $67 million for each silo. There are some very large start-up costs associated with that. And if you wish to do a 41st missile, the cost then would be down to about $15 million per silo.


FULL SCALE ENGINEERING DEVELOPMENT DECISION
1ST FLIGHT TEST
PRODUCTION
SILO MODIFICATIONS
IOC
1979
1980
1981
1982
1983
1984
1985
1986
DEPLOYMENT
FLIGHT TEST FACILITIES CONSTRUCTION
SUPPORT FACILITIES CONSTRUCTION

SLIDE 12

BASING TIMETABLE FOR MINUTEMAN

The timetable for MX basing in Minuteman silos is as shown. We began full-scale development in 1979. Most of our test facilities at Vandenberg are complete and all has gone well. We are working toward the first flight in early 1983. Our request is for missile production to begin in 1983. Of course, that is one of the items at issue with the authorizing committee. We also need in 1983 to begin not the construction of silos, but the construction of support facilities at whatever Minuteman base is selected, plus facilities for depot support, training, and all of that.

Actual silo modification would begin early in 1985. We would work toward a late 1986 initial operational capability and complete this program around the end of 1987.

That is a quick look at what we call the interim solution with silo basing of 40 MX missiles.

MX LONG-TERM OPTIONS

Continuous patrol aircraft.
Deep basing.
Ballistic missile defense.

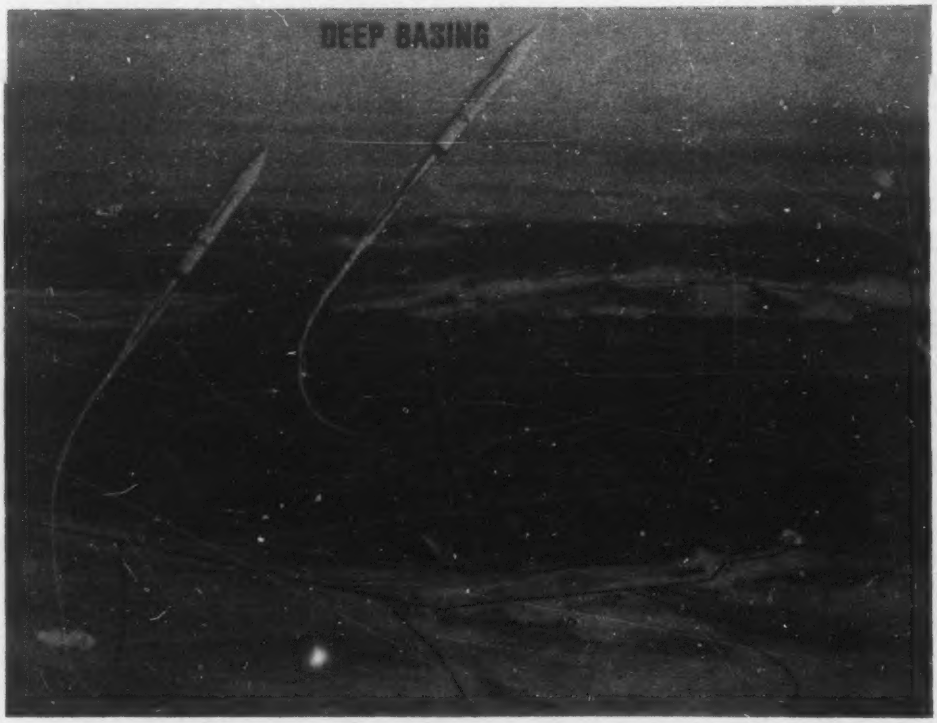
Turning now to the longer-term alternative which would be a proper home, a survivable home, for MX. As I mentioned earler, we are looking at these three conceptual areas. I will now say a word about each.

CONTINUOUS PATROL AIRCRAFT
[CPA]

Slide 13

AIR-MOBILE SYSTEM

We have looked at an air-mobile system for MX over many years and have rejected it in the past on the grounds of cost and reduced capability. People have reintroduced this subject based on projections of new technology that perhaps is obtainable, that would let us employ an airplane that would fly not for hours but for days on end. It would accomplish this through the large use of composites and highly fuel-efficient engines. So, these airplanes could go out and be on patrol for days rather than for hours and thereby pick up the survivability features, akin to submarines.

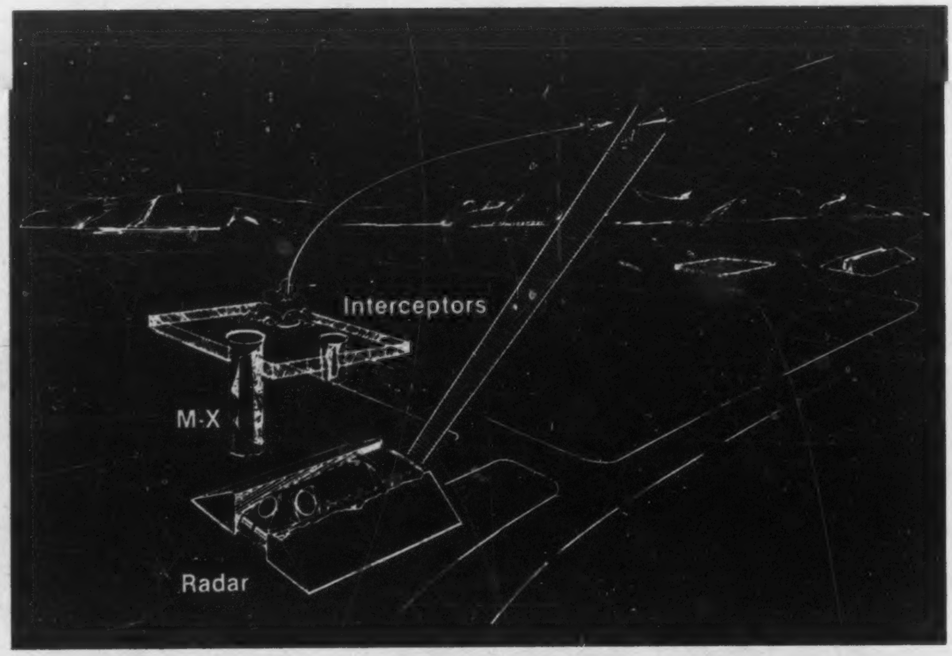


SLIDE 14

DEEP BASING

The second option is deep basing, and there are many variants of that as illustrated here. For example, you could place the missiles in vaults in mountains or underground in sandy soil, perhaps 2,000 or 3,000 feet down. Again, this approach has been looked at over the years, but new technology, particularly in boring equipment, has been introduced by the mining industry that might help in resolving some of the tougher problems.

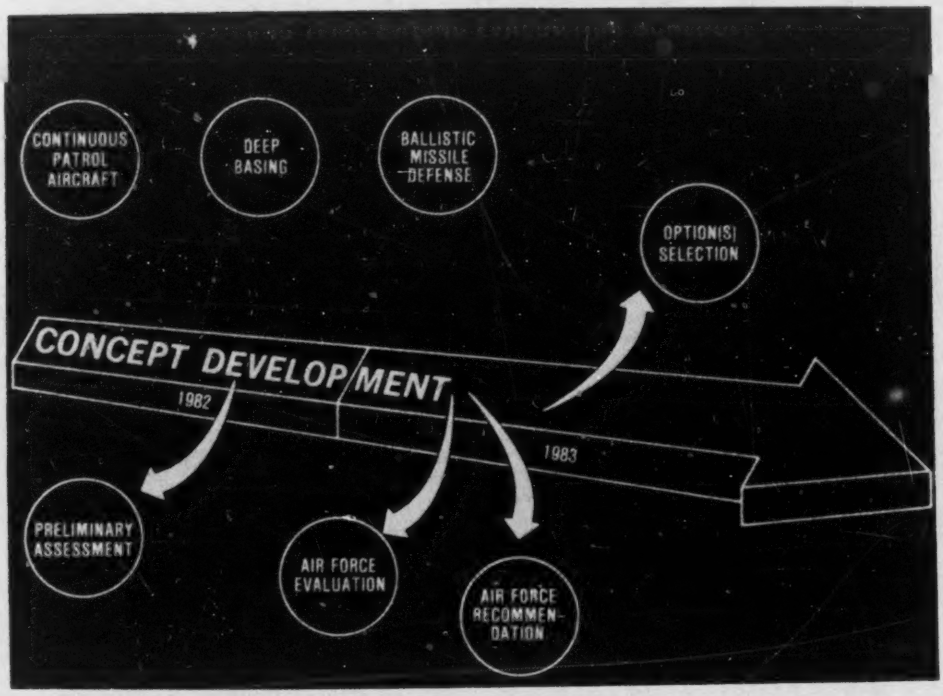
But obviously, this is not a quick-reacting system and it would have to be thought of, if we did this, as part of our survivable reserve forces.



SLIDE 15

BALLISTIC MISSILE DEFENSE

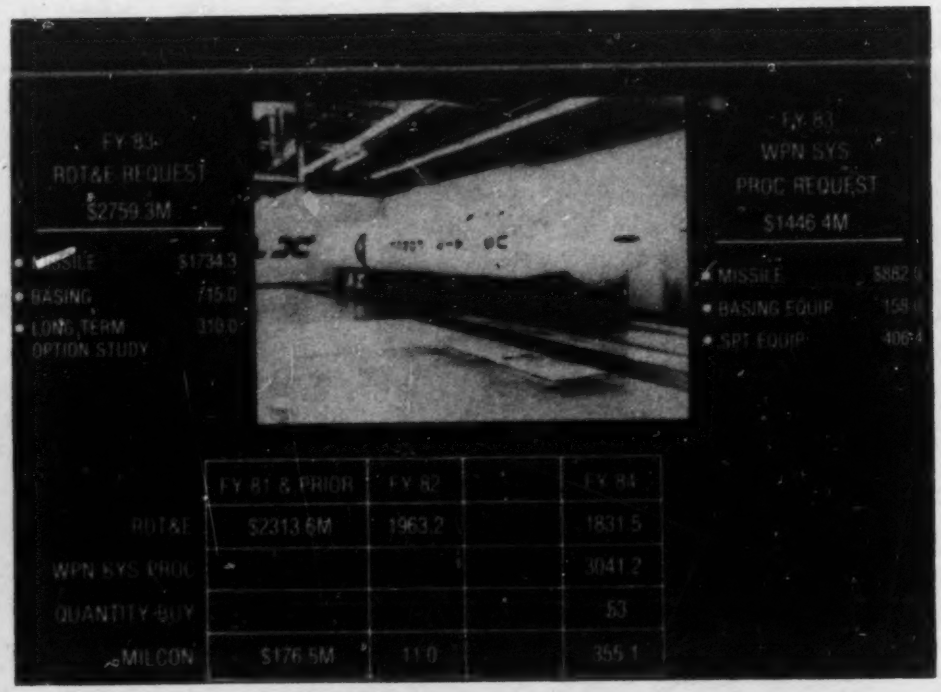
The third approach is ballistic missile defense. We have General Tate who directs those activities. In ballistic missile defense, as Congress directed, we are looking at deceptive basing in very close coordination in with General Tate.


CONTINUOUS PATROL AIRCRAFT
DEEP BASING
BALLISTIC MISSILE DEFENSE
OPTION(S) SELECTION
CONCEPT DEVELOPMENT
1982
1983
PRELIMINARY ASSESSMENT
AIR FORCE EVALUATION
AIR FORCE RECOMMENDATION

SLIDE 16

SURVIVABLE BASING OPTIONS

Here is our schedule for developing the long-term survivable basing options. We have a panel made up of agencies from OSD, the Army and the Air Force, headed by Dr. DeLauer. We are going to do, over the next few months, a preliminary assessment of the many candidates in each of the three areas, picking those with the most potential for a detailed evaluation. We expect to complete our evaluation by around April of 1983 so that we can make our recommendation to the Secretary of Defense in time to enable him in turn, to make his recommendation to the President and Congress by July 1, 1983.



FY 83
RDT&E REQUEST
$2759.3M

- MISSILE $1734.3
- BASING 715.0
- LONG TERM OPTION STUDY 310.0

FY 83
WPN SYS
PROC REQUEST
$1446.4M

- MISSILE $882.0
- BASING EQUIP 158.0
- SPT EQUIP 406.4

	FY 81 & PRIOR	FY 82		FY 84
RDT&E	$2313.6M	1963.2		1831.5
WPN SYS PROC				3041.2
QUANTITY BUY				53
MILCON	$176.5M	11.0		355.1

Slide 17

TOTAL MX BUDGET

The final chart is to illustrate what is in the 1983 budget for the MX.

For research and develoment the budget contains $2.7 billion, 1983 is the peak year for R. & D. for the MX, then it starts to decline in 1984. We begin procurement of the first nine MX's and all the associated support equipment in fiscal year 1983. Typically in a program, the first year's procurement is very expensive. This is because we are paying for start-up and there is a lot of nonrecurring cost associated with that.

There is also $236 million for military construction but for which includes support facilities at a selected base, as well as depot, and training facilities and facility modification. We, of course, will not be reconstructing the silos themselves, but will be making some modifications so that they can accommodate the MX missiles.

The procurement request is divided between missiles and equipment. You can see here under research and development: $715 million is associated with the silo basing alternative; and then this $310 million is associated with those three long-term basing alternatives. That is divided into $127 million for deep basing, $109 million for the defended deceptive basing, and $74 million for continuous patrol aircraft.

My understanding of what the authorizing committee has done is to delete all the procurement funds and also to delete the $715 million that is associated with the interim silo basing. They have retained all of the research and development associated with the missile and have identified $565 million for survivable basing. Further, they have directed us to pick that long-term alternative by December of this year.

[The prepared statement of Lt. Gen. Kelly H. Burke follows:]

PREPARED STATEMENT OF LT. GEN. KELLY H. BURKE

DEPUTY CHIEF OF STAFF, RESEARCH, DEVELOPMENT AND ACQUISITION

HEADQUARTERS, UNITED STATES AIR FORCE

Mr. Chairman and Members of the Subcommittee:

I am pleased to appear before you to discuss the M-X, a key element in our program for strategic force modernization. Strategic force modernization is one of the highest priority efforts contained in the budget request. This emphasis is dictated by the need to end the relative decline in our strategic capabilities and to restore the margin of safety in the U.S.-Soviet strategic balance.

The fundamental objective of our strategic nuclear forces is to deter nuclear attack or the threat of such attack on the United States, our allies, or others whose security is vital to our national interests. This objective is supported by the strategic Triad concept: a highly credible, capable, and well-hedged force structure that is designed to deter and, if necessary, respond to a wide range of threats. The Triad consists of submarine-launched ballistic missiles (SLBMs), land-based intercontinental ballistic missiles (ICBMs), and the bomber leg, which includes cruise missiles and supporting tankers. These forces must be capable of surviving a first strike with a credible counterstrike capability of such magnitude as to deny the Soviets any possibility of a favorable strategic outcome.

The Triad concept has two major benefits. First, it provides confidence that, while the Soviets may be able to develop the capability to destroy or neutralize one leg of the Triad, they would find the task of simultaneously neutralizing the remaining legs beyond their capabilities. Second, it forces the Soviets to spread their defensive efforts to counter a wider range of threats, thus denying them the advantage of concentrating their resources in any single defense area and/or diverting funds to areas more threatening to us. The Triad has served us well in the past and will continue to serve us well in the future if we act promptly and prudently to address emerging vulnerabilities and deficiencies in our strategic forces.

At the end of World War II, the United States had a monopoly in nuclear weapons. This posture allowed us to rely on our strategic force superiority to help maintain stability in the world. Today, however, the Soviets have fielded powerful strategic forces which have caused a shift in the strategic balance. Any imbalance in strategic forces provides an added incentive for Soviet adventurism and makes meaningful and equitable arms reduction agreements difficult to achieve. Unless the Soviet momentum is checked, we face the ominous prospect of substantial Soviet superiority in the years ahead.

This shift in the balance of strategic power has resulted from a determined and sustained commitment to strategic force modernization by Soviet leaders. A significant disparity has existed for years between U.S. and Soviet spending for strategic forces. Since 1971, the estimated cumulative dollar costs of Soviet strategic force procurement exceeded that of the U.S. by about $130 billion (1983 dollars). Our major challenge is to modernize our strategic forces to maintain their deterrent value in the face of this substantial Soviet buildup. In short, we must proceed quickly and resolutely with a vigorous strategic modernization program.

Last October, President Reagan announced a broad and coherent plan for revitalizing our strategic forces. Over the next several years, the President's program will strengthen our current strategic posture and provide deterrence that is far more secure and stable. Furthermore, the program will increase the incentive for the Soviets to negotiate genuine arms reductions.

The President's program consists of five mutually reinforcing elements: (1) improvements in command, control, and communications (C^3) systems; (2) modernization of strategic bombers; (3) deployment of new submarines and submarine-launched missiles; (4) a step-by-step plan to improve the strength and accuracy of new land-based missiles and to reduce their vulnerability; and (5) improvements in strategic defense. The Air Force is responsible for carrying out much of the President's strategic program. Today, I will focus on the fourth element of the program, specifically the M-X.

Among the most critical and growing challenges facing us today is improving the capability and survivability of our land-based ICBM forces. The Soviets now have the capability to destroy a large and growing percentage of our silo-based ICBMs and still maintain a large residual force of weapons.

The M-X missile is being developed to improve ICBM capability through a phased modernization plan. The plan provides for survivability and endurance of the M-X over the long term, while taking advantage of the M-X's unique capability and flexibility in the near term. Survivability and endurance will be pursued through vigorous research and development on three promising basing options: (1) Continuous Patrol Aircraft--a survivable, long-endurance aircraft platform for M-X; (2) Deep Basing--deployment of M-X in survivable locations deep underground; and (3) Ballistic Missile Defense (BMD)--active defense of land-based M-X missiles. Within the BMD option, we will work with the Army to explore the synergism which can be achieved through various combinations of active defense, silo hardening, and deceptive basing.

The Air Force is responsible for the first two options, while the Army, in cooperation with the Air Force, is responsible for BMD. These development efforts are structured to permit selection of one or more of these options by July 1983, as directed by Congress.

To provide improved capability in the near term, we will deploy a minimum of 40 M-X missiles in Minuteman silos. Minuteman silos were selected for four primary reasons: (1) greater operational effectiveness; (2) deployment in one wing, which enhances C^3 capabilities, avoids duplication of facilities, and reduces costs; (3) compatibility with BMD deployment; and (4) flexibility for future expansion. Criteria for silo selection includes geological conditions which provide maximum inherent hardness against nuclear effects and preserves the option for further hardening, should that be a feature of the long-term basing mode.

Deploying M-X in silos is a reasonable and prudent approach for improving the deterrent capability of our ICBM force. Since M-X will be ready for deployment in 1986, placing M-X in existing silos is the fastest way to improve our capability. M-X in silos will also serve as a near-term counterbalance to the growth in Soviet hard-target, counterforce capabilities. Furthermore, the decision to produce and deploy M-X in silos will greatly enhance the U.S. position for favorable strategic arms reduction talks.

In FY 1983, we will continue development of M-X, vigorously pursue the long-term basing options, and procure the first nine missiles. These efforts support our objective of deploying M-X in silos beginning in 1986.

This concludes my prepared statement. I will be glad to answer any questions you may have.

ELIMINATION OF INTERIM OPTION

Senator STEVENS. The effect of that, then, as you interpret it, would be to eliminate entirely the interim option. The Armed Services Committee action would eliminate the interim option, is that your understanding?

General BURKE. Yes, sir.

Senator STEVENS. I appreciate that, General.

RESEARCH AND ENGINEERING

STATEMENT OF DR. JAMES P. WADE, JR., PRINCIPAL DEPUTY UNDER SECRETARY OF DEFENSE FOR RESEARCH AND ENGINEERING

LONG-TERM OPTION ON BASING

Senator **STEVENS**. Dr. Wade, I apologize to you for the rearranging of the hearing. I do want to ask just a couple of questions before, as I said, I must leave.

One of them is, what will be the impact in 1984 on the decision to eliminate the interim option and go directly into the long-term option as far as the basing decision is concerned?

Dr. **WADE**. First of all, Mr. Chairman, as I best understand the current markup by the SASC and if that were to be approved by the Congress, we would lose the deployment date of the MX system in 1986. I believe this committee well appreciates the importance of the comprehensive nature of our strategic modernization program. We would have a significant degradation in the deterrent posture that we are moving to, relative to the Soviet Union by delaying the IOC of the MX missile. By slipping that date, we also are being asked to move toward an earlier decision as to the permanent basing solution, where MX should be deployed, in an enduring survivable deployment mode.

It is our judgment that we need the MX capability early; and, we need sufficient time, on the order of one-plus years, to get the technical facts down in front of us as to what is the best deployment option. We might have a multiple deployment for the long-term future.

This is an important point. We need to be careful with not trying to force needed technical facts by a certain date. Our program was structured in an integrated sense; and our response to the direction from the Congress as of last December to report our recommendations by the middle of 1983, we thought, was a double operation. I am concerned about trying to move the Department's schedule forward, and basically to start forcing facts that we think are important to have for making a sound decision.

[The prepared statement of Dr. James P. Wade follows:]

PREPARED STATEMENT OF DR. JAMES P. WADE, JR.

PRINCIPAL DEPUTY UNDER SECRETARY OF DEFENSE
(RESEARCH AND ENGINEERING)

MR. CHAIRMAN AND MEMBERS OF THE COMMITTEE:

IT IS AN HONOR TO APPEAR BEFORE THIS SUBCOMMITTEE THIS MORNING TO DISCUSS THE M-X ICBM PROGRAM IN DEFENSE OF OUR BUDGET REQUEST FOR FY 1983. IT IS MY VIEW THAT THE M-X PROGRAM CANNOT BE EVALUATED NOR FULLY APPRECIATED IN ISOLATION FROM THE OVERALL STRATEGIC MODERNIZATION PROGRAM ANNOUNCED BY THE PRESIDENT LAST OCTOBER. THEREFORE, I NEED TO SPEND A FEW MOMENTS IN DESCRIBING THE GUIDING PRINCIPLES USED BY THE REAGAN ADMINISTRATION IN DEVELOPING THAT MODERNIZATION PROGRAM.

THE FIRST WAS THAT IT MUST BE COMPREHENSIVE. WE BELIEVED THAT A PIECEMEAL APPROACH WOULD SIMPLY NOT DO IN THE FACE OF THE KNOWN SOVIET CAPABILITIES AND TRENDS. THE SECOND PRINCIPLE WAS THAT WE AIMED OUR FOCUS ON ENDURING SURVIVABILITY. MOST OF THE SOVIET STRATEGIC NUCLEAR WEAPONS ARE DEPLOYED IN THEIR LAND-BASED ICBM FORCE--A FORCE WITH SIGNIFICANT HARD TARGET KILL CAPABILITY. WE KNOW THEY ARE CONTINUOUSLY INCREASING THIS FORCE AND THAT MOST OF THE INCREASE IS IN SYSTEMS WITH HARD TARGET KILL CAPABILITY. A SUB-SET OF THIS SECOND PRINCIPLE IS THAT WE WISHED TO BE RELATIVELY INDIFFERENT--TO THE EXTENT THAT IS POSSIBLE TO THE SOVIET RESPONSE TO OUR MODERNIZATION EFFORTS. WE WISHED, IN SHORT, TO BREAK THE CYCLE OF ACTION AND REACTION THAT HAS BECOME KNOWN AS THE ARMS RACE, PARTICULARLY MOVING AWAY FROM THE PAST DOMINANCE IN THINKING ON THE NUMBER OF NUCLEAR WEAPONS POSSESSED BY BOTH SIDES AS A KEY INDICATOR FOR BALANCE ASSESSMENT.

BY STRESSING ENDURING COMMAND, CONTROL, AND COMMUNICATIONS WE SOUGHT TO MAINTAIN OUR FIGHTING POTENTIAL REGARDLESS OF SOVIET ACTION. I WOULD STRESS HERE THAT HIGHLY EFFECTIVE, ENDURING C^3--EVEN AT EXTRA EXPENSE--CAN BE TRADED OFF AGAINST THE NEED FOR ADDITIONAL NUCLEAR WEAPONS. BY STRESSING SEA-BASED FORCES--OUR MOST SURVIVABLE ASSETS TODAY AND FOR THE FORESEEABLE FUTURE--WE SOUGHT INCREASED STABILITY. BY IMPROVING THE BOMBER FORCE, WE SOUGHT TO COUNTER ANY THREATS, NEAR OR FAR-TERM, TO THE SURVIVABILITY OF THE AIR BREATHING FORCES, AND, IN ADDITION, TO PROVIDE A COMPARABLE HIGH CONFIDENCE PLATFORM FOR THE HIGH LEVERAGE OFFERED BY OUR MODERN CRUISE MISSILE PROGRAMS. BY CONCENTRATING ON THE LONG NEGLECTED AREA OF STRATEGIC DEFENSE, WE SOUGHT TO AVOID THE POSSIBLE SOVIET BELIEF THAT SOME FORM OF A RELATIVELY CHEAP, PRECURSOR STRIKE WAS POSSIBLE. IN ADDITION, ENDURING STRATEGIC DEFENSES, THROUGH DENIAL OF POST-ATTACK RECONNAISSANCE, ENHANCES FURTHER THE DETERRENT EFFECTIVENESS IN OUR FORCES WITHOUT BUYING ADDITIONAL WEAPONS. BY IMPROVING AND CONCENTRATING ON THE RAPID DEPLOYMENT OF THE M-X MISSILE, COUPLED WITH SEVERAL OPTIONS FOR ITS PERMANENT BASING, WE SOUGHT TO STRUCTURE A SYSTEM WHICH WOULD PRESERVE THE VITAL ATTRIBUTES THAT ONLY LAND-BASED MISSILES CAN OFFER, WHILE PROVIDING THE ABILITY--WHICH THE PREVIOUS ADMINISTRATION'S PLAN LACKED--TO ENDURE IN THE FACE OF THE GROWING SOVIET THREAT. FINALLY, WE INCLUDED THE IMPORTANT FEATURE OF EXPANDABILITY. SINCE, IN A CRISIS, THE SOVIETS MIGHT BREAK OUT OF ARMS CONTROL CONSTRAINTS OR SUDDENLY EXPAND THEIR FORCES IN WAYS UNEXPECTED, WE THOUGHT IT IMPORTANT TO PROVIDE THE OPTION TO EXPAND OUR FORCES ALSO. THE MERE EXISTENCE OF THAT OPTION, AVAILABLE ONLY THROUGH AN ACTIVE PRODUCTION LINE FOR A MODERN MISSILE, WOULD OFFER CONSIDERABLE DETERRENCE OF SUCH A SOVIET ACTION.

THOSE PRINCIPLES, THEN, ARE THE FOUNDATIONS OF THE PRESIDENT'S FIVE PART STRATEGIC MODERNIZATION PROGRAM INVOLVING C^3, SLBMs, BOMBERS, AND CRUISE MISSILES, STRATEGIC DEFENSE, AND ICBMs. THESE COMPONENTS ARE MUTUALLY REINFORCING BY DESIGN AND ALL EVALUATIONS SHOULD BE DONE IN THAT CONTEXT. BEFORE LEAVING THIS BROAD AREA TO DISCUSS THE M-X PROGRAM, I WOULD EMPHASIZE THAT OUR PROGRAM CORRECTLY REFLECTS AN ADMINISTRATION COMMITMENT TO THE CONCEPT OF THE STRATEGIC TRIAD OF FORCES WELL KNOWN TO THIS SUBCOMMITTEE.

THE ICBM MODERNIZATION PLAN IS AN IMPORTANT PART OF THE ANSWER TO SOVIET INITIATIVES THAT HAVE CREATED AN IMBALANCE IN STRATEGIC FORCES THAT SERIOUSLY THREATENS OUR ABILITY TO DETER THEM FROM STRATEGIC COERCION. IT IS A VITAL PART OF A COHERENT PLAN FOR STRATEGIC MODERNIZATION THAT WILL GO FAR IN REDRESSING THE STRATEGIC IMBALANCE WE NOW FACE. BETWEEN 1971-1980, THE ESTIMATED CUMULATIVE

DOLLAR COSTS OF SOVIET STRATEGIC FORCE PROCUREMENT EXCEEDED THAT OF THE UNITED STATES BY ABOUT $95 BILLION. THIS IS OVER 50% MORE THAN TOTAL U.S. STRATEGIC PROCUREMENT FOR THE SAME PERIOD. THE PRIMARY SOVIET EMPHASIS WAS, AND CONTINUES TO BE, BALLISTIC MISSILE SYSTEMS. THE END RESULT IS THAT THE SOVIETS ARE ESTABLISHING A MONOPOLY IN PROMPT, COUNTERFORCE CAPABILITY, WHICH WILL SOON THREATEN OUR ICBM AND BOMBER FORCES WITH RELATIVE IMPUNITY.

THE MULTIPLE PROTECTIVE SHELTER (MPS) SYSTEM WAS PROPOSED BY THE PREVIOUS ADMINISTRATION AS THE RESPONSE TO THE ICBM VULNERABILITY PROBLEM. AS YOU KNOW, BOTH THE TOWNES PANEL AND WE REJECTED MPS AS NOT BEING SURVIVABLE AGAINST HIGHER THREATS WITHOUT UNACCEPTABLE COSTS. RECOGNIZING THAT MPS WAS NOT THE DIRECTION THAT WE WANTED TO FOLLOW, AND LEFT WITH NO IMMEDIATELY AVAILABLE LONG-TERM ANSWER TO THE ICBM SURVIVABILITY PROBLEM, WE DECIDED UPON A MEASURED, PHASED PLAN TO DEVELOP MORE ECONOMICAL LONG-TERM SURVIVABILITY. THE PLAN CONSISTS OF TWO PARTS. FIRST, WE WOULD COMPLETE DEVELOPMENT OF THE M-X MISSILE AND FIELD IT AS SOON AS IT IS AVAILABLE IN EXISTING MINUTEMAN SILOS. SECOND, WE ARE CONDUCTING A VIGOROUS RESEARCH AND DEVELOPMENT PROGRAM THAT WILL ALLOW US TO CHOOSE IN JULY 1983 AMONG THE MOST PROMISING LONG-TERM M-X BASING OPTIONS. THESE OPTIONS INCLUDE CONTINUOUS PATROL AIRCRAFT, DEEP BASING, AND BALLISTIC MISSILE DEFENSE OF EITHER FIXED OR DECEPTIVELY BASED ICBMs. WE PLAN TO SPEND APPROXIMATELY $310 MILLION IN RDT&E DURING FY 83 ON THESE LONG-TERM BASING OPTIONS. THIS WILL ALLOW US TO FLESH OUT PROMISING CONCEPTS, EVALUATE THEM, AND BEGIN WORK ON THE OPTION SELECTED IN JULY OF 1983.

THE COST TO COMPLETE THE INTERIM SILO PROGRAM IS $3.6 BILLION IN CONSTANT FY 82 DOLLARS. THIS FIGURE DOES NOT INCLUDE THE COST OF THE MISSILES WHICH WILL BE USED IN THE INTERIM AND PERMANENT BASING MODES. I WOULD LIKE TO TAKE A MOMENT TO EXPLAIN WHY WE THINK THIS INTERIM BASING IS SO IMPORTANT. WE HAVE TWO PROBLEMS WITH THE MINUTEMAN SYSTEM. THE FIRST AND BETTER KNOWN DEFICIENCY IS THAT INCREASES IN THE SOVIET THREAT HAVE REDUCED THE EXPECTED SURVIVABILITY OF THE FORCE TO AN UNACCEPTABLE LEVEL. THE PROPER RESPONSE TO THIS IS TO DEVELOP A SURVIVABLE, LONG-TERM BASING MODE FOR A MODERN MISSILE. THE SECOND DEFICIENCY IS THAT INCREASES IN NUCLEAR HARDNESS OF SOVIET ICBM SILOS AND OTHER IMPORTANT FACILITIES HAVE REDUCED OUR ABILITY TO PUT THOSE TARGETS AT RISK. KNOWING THIS, THE SOVIETS FEEL LESS CONSTRAINED FROM ADVERTURISM AROUND THE WORLD, LESS INTERESTED IN STRATEGIC ARMS REDUCTION TALKS, AND ENCOURAGED TO CONTEMPLATE OUTRIGHT COERCION, EITHER PRE- OR POST-ATTACK. THE BEST RESPONSE IN THIS CASE IS TO DEPLOY THE POWERFUL M-X MISSILE AS SOON AS POSSIBLE, EVEN IF A TRULY SURVIVABLE BASING MODE IS NOT AVAILABLE AT THAT TIME. THE QUICK REACTION HARD TARGET KILL CAPABILITY OF M-X IMMEDIATELY CORRECTS THAT SECOND DEFICIENCY BY FOCUSING THE SOVIET'S ATTENTION ON THE SURVIVABILITY OF THEIR OWN FORCES. THEY WOULD BE MOTIVATED TO SHIFT SIGNIFICANT RESOURCES FROM BUILDING OFFENSIVE FORCES WHICH FURTHER UNDERMINE OUR SECURITY TO FOCUSING ON THE SURVIVABILITY OF THEIR FORCES, WITH A NET REDUCTION IN THE CURRENT INSTABILITY. ANOTHER RESPONSE, EITHER AS AN ALTERNATIVE OR AS A COMPLEMENT TO THE FIRST, WOULD BE TO PURSUE MEANINGFUL STRATEGIC ARMS REDUCTION TALKS WITH US. FINALLY, THE SOVIETS WOULD HAVE TO REGARD ACTIVE M-X PRODUCTION LINES AS A DETERRENT AGAINST ANY PLANS THEY MIGHT HAVE FOR A "BREAKOUT" DESIGNED TO GIVE THEM A SUDDEN, PERHAPS IRRETRIEVABLE STRATEGIC ADVANTAGE.

THE CORRECT CHOICE OF A LONG-TERM SURVIVABLE ICBM BASING MODE WILL DEPEND ON THE EVOLUTION OF THE THREAT, TECHNICAL FEASIBILITY OF THE ALTERNATIVES, AND THE FISCAL AND ENVIRONMENTAL COSTS OF THE POSSIBLE SOLUTIONS. THE DIVERSITY OF CHOICES AVAILABLE GIVES ME THE HIGHEST CONFIDENCE THAT A TECHNICALLY SOUND, PRACTICAL APPROACH CAN BE DEVELOPED FOR A DECISION IN JULY OF 1983.

THE DIVERSITY OF CHOICES ALSO CREATES GREAT UNCERTAINTY FOR SOVIET FORCE STRUCTURE PLANNING. FOR EXAMPLE, IF WE WERE TO CHOOSE AS THE LONG-TERM SOLUTION ONE VERY PROMISING BALLISTIC MISSILE DEFENSE OPTION, THAT OF DECEPTIVE BASING OF M-X AND ITS DEFENSE SYSTEMS TO GAIN HIGH LEVERAGE, A SOVIET COUNTER TO THIS WOULD IN ALL LIKELIHOOD REQUIRE HIGH FRACTIONATION--DEPLOYING MANY SMALL REENTRY VEHICLES ON THEIR ICBMs. ON THE OTHER HAND, IF WE CHOOSE DEEP BASING, A PROBABLE SOVIET COUNTER WOULD BE REVERSE FRACTIONATION, OR FEWER, HIGH-YIELD REENTRY VEHICLES ON THEIR ICBMs. THIS TYPE OF PLANNING UNCERTAINTY, TOGETHER WITH THE OFFENSIVE POTENTIAL OF M-X MISSILES, SHOULD DRIVE THE SOVIETS TO PUT PARAMETERS AROUND THE PROBLEM THROUGH ARMS NEGOTIATIONS. OBVIOUSLY, OUR DEPLOYMENT CHOICES WILL IMPROVE OUR NEGOTIATING LEVERAGE.

BUT WE WILL NOT HAVE THE CHOICES, THE FLEXIBILITY, THE LEVERAGE, UNLESS WE CONTINUE TO PURSUE THE PRESIDENT'S ICBM MODERNIZATION PROGRAM. PLANS CALL FOR INVESTMENT OF $15.0 BILLION IN FY 82 CONSTANT YEAR DOLLARS FOR DEVELOPING AND PROCURING THE M-X MISSILES NEEDED TO SUPPORT THE 100 OPERATIONAL SYSTEMS WE ULTIMATELY PLAN TO DEPLOY. AS I STATED EARLIER, WE ESTIMATE THAT APPROXIMATELY $3.6 BILLION WILL BE REQUIRED FOR BASING THE FIRST 40 OPERATIONAL SYSTEMS IN EXISTING SILOS. INCLUDED IN THESE BASING COSTS ARE THE EQUIPMENTS NEEDED TO SUPPORT THE MISSILES IN THEIR SILOS, FACILITIES ON THE MAIN OPERATING BASE, AND TRAINING AND LOGISTICS FACILITIES. I SHOULD NOTE THAT THE $3.6 BILLION AMOUNT DOES NOT INCLUDE APPROXIMATELY $700 MILLION PREVIOUSLY SPENT ON THE CANCELLED MPS BASING SYSTEM. WHILE SOME OF THAT HAS APPLICATION TO SILO BASING, IT IS SUNK COST AND DIFFICULT TO BREAK OUT BETWEEN "GENERAL" BASING COSTS AND MPS "UNIQUE" COST. I SHOULD ALSO NOTE THAT ALMOST $1 BILLION OF THIS INTERIM BASING COST WILL HAVE APPLICATION TO ANY LONG-TERM PLAN FOR M-X.

I WILL NOW BE MOST HAPPY TO ANSWER ANY QUESTIONS YOU MAY HAVE OR DEFER THEM UNTIL YOU HAVE HAD A CHANCE TO HEAR FROM THE OTHER WITNESS. I AM AT YOUR DISPOSAL.

IMPACT ON COST OF ARMED SERVICES COMMITTEE RECOMMENDATION

Senator **STEVENS**. What is the impact on cost of what the Armed Services Committee recommended?

General **BURKE**. It is difficult to gage. Our first estimate of that is that delay of production of 1 year will add $250 to $300 million to the cost of the MX program.

I suspect that may understate it because as I mentioned earlier, the MX missile program is a very successful development effort—on time, on cost, meeting its technical goals.

It is made up of a very complex and highly integrated group, something like 45 major contractors and hundreds of subcontractors around the country. There are over 20,000 people working today on the MX system, marching down an orderly path to develop and then move into the production phase of this missile.

It is just hard to calculate what the impact of turning that spigot off for a year and then coming back and turning it on will be.

Senator **STEVENS**. Do you interpret the Armed Services Committee position to not permit you to acquire the missiles to continue the testing program?

General **BURKE**. No, sir. I think they clearly intend for us to continue the testing.

Senator **STEVENS**. I thought you said they took out the procurement of nine. Is not that what you are going to test?

General **BURKE**. No, sir, those are production missiles. The R. & D. money buys 20 R. & D. missiles. That is over and above the production missiles that we spoke of.

Senator **STEVENS**. It is my understanding we authorized 100 missiles and 40 to 50 would be deployed. You would have 20 for testing, and you had the balance in reserve.

Now, how does the Armed Services Committee decision affect that, it affects only the production part and not the 20 for testing; is that your interpretation?

General **BURKE**. Yes, sir; that is my understanding. There are 20 missiles embedded in the research and development request for the MX, and those are missiles that would be fired during research and development testing and evaluation.

The test missiles included in the procurement request are production missiles that we would fly in what we call operational testing and evaluation, a program conducted over the life of the system.

R. & D. TEST MISSILES

Senator **Stevens**. Well, then, how does that affect the rate of production? You are going to take the first ones off the line for testing, I assume.

General **Burke**. Yes, sir. We are preparing the research and development test missiles now. The first of those will be available in time to support the initial flight test scheduled for early next year?

Senator **Stevens**. They would be delivered in this year.

General **Burke**. Yes, sir. The first of them will be.

Senator **Stevens**. I thought there was some indication that this was going to affect the orderly production rate of the missile.

General **Burke**. Well, the same people in the same facilities that complete the building of those 20 research and development missiles then convert to production tooling and begin to ramp up for the production effort. All of this is planned with a great deal of continuity, and that continuity would be lost if all production funds are deterred in fiscal year 1983. We will have a 1-year gap, at least 1 year.

Senator **Stevens**. Has the Office of the Secretary of Defense asked you to develop a new budget and schedule based on the proposed Armed Services Committee action?

General **Burke**. No, sir, we do not have a formal request to that effect. It is not clear to us exactly what the dollar authorizations will finally be. I gave you a general impression, but I am not sure we have a clear picture of those numbers yet.

IMPACT OF RETAINING MINUTEMAN FOR ADDITIONAL 2 YEARS

Senator **Stevens**. Well, what is the impact if we leave the Minuteman in for another 2 years and do not replace them with the MX?

General **Burke**. I think Dr. Wade made some very cogent points in that regard. I think the impact of slowing down production, deferring production of the MX, will have very serious and undesirable consequences in several respects.

Senator **Stevens**. Well, General, neither one of them is survivable in those silos you have there now.

General **Burke**. That is correct, and no one holds out that the MX will be survivable when deployed in silos. It is an interim measure, not to provide survivability, but to provide the continuation of the program that is in existence for military, political, and arms control reasons.

Senator **Stevens**. I do not want to seem facetious, but it reminds me of my buying a new boat, you know, it was just something that produced a bigger hole in the water in which I poured money.

Is not that what you are doing, you are just re-digging these holes and putting bigger missiles in the same holes? But they are no more survivable than the ones that are in there now.

General **Burke**. They are no more survivable than the ones that are there; but, they are much more capable missiles.

I think, first, if we are to have any chance of success in the arms control process—which I certainly hope we do—we have to have some continuity of our development and production of strategic forces.

Senator **Stevens**. I am worred about that, too. But I am also worried about spending $2 to $3 billion on an interim-basing mode for missiles that are not survivable, unless you are changing your whole concept of launch under attack. I think that is behind the scenes in this whole eruption we have had on the nuclear freeze. The impression is being given—rightly or wrongly—that we have changed our concepts, and that we are the ones that are initiating an arms race, rather than the Russians.

Well, we will get into that later.

INTERIM BASING

Dr. **Wade**. Mr. Chairman, may I add some additional comment to your question about interim basing?

Senator **Stevens**. Yes, sir.

Dr. **Wade**. First of all, if there is an impression that the Department is proceeding toward a policy of launch on warning, that is absolutely not correct. But let me go through a few observations to the importance of the interim deployment of MX in Minuteman silos.

First, the Soviets will no longer be able to regard their silos and their hardened command and control facilities as sanctuaries immune from ICBM attack.

Second, the Soviet planner in structuring his forces toward a preemptive first-strike capability will find he is facing a comparable hard target, time-responsive U.S. capability. He will thus no longer have the freedom to deploy with high confidence those force elements such as jammers and other ECM whose time-sensitive employment could highly stress and more easily defeat U.S. defensive systems.

ADDITIONAL SILO HARDENING FOR MX

Senator **Stevens**. But Doctor, you just said a more hardened silo, and I just asked whether there is going to be any additional hardening for this silo. Is there going to be any greater protection for the MX than there is for the Minuteman? There is not.

Dr. **Wade**. I am talking to the case wherein we will then be presenting to the Soviets a capability that we have not had to date, and therefore he would have to worry—and he would worry because he is a "belt and suspender" planner like we are—that we might initiate the conflict.

Senator **Stevens**. There you go again, that is exactly what started the problem over the nuclear freeze, is that we might go first.

Dr. **Wade**. No, Mr. Chairman, the point is that we do not have the capability to effectively execute a first strike; and neither will the first 40 MX's that we are talking about here give us that capability.

What we are trying to do here is to incentivate the Soviets to move to a new basing posture in which they will spend their scarce resources toward a deployment which is more survivable and therefore less, a worry to us.

Senator **Stevens**. Senator Andrews, and when you are finished, Senator Rudman, I have a series of questions that I want to get answers to. I am sorry, I am sure you all know where I am going. I would appreciate it if you would ask those questions.

Senator **Rudman**. I certainly will, Mr. Chairman.

Senator **Stevens**. Thank you very much.

Senator Andrews?

Senator **Andrews** [presiding]. Thank you, Mr. Chairman.

U.S. MISSILE CAPABILITY

Doctor, one of the things out in the country—and I am not a lawyer or missiles expert, I have been a farmer all my life—the thing that we stress is plain speaking.

Your answer to the chairman goes a long way from that. You talk about the capability to take out their missiles. Actually, if we base these MX missiles in a Minuteman silo where the Minuteman is already targetable, the Russians now can get three for sending that missile in.

We put them in that same silo, they are no more protected—you just said that. The Russians then have a much bigger bargain for their buck because they can take out 10 warheads with the same missile that now can take out one. You talk about capability being enhanced by putting the MX in those holes.

The thing that I have interpreted is that the necessity to fire first becomes enhanced if we have 10 of our warheads instead of 3 of our warheads in that targetable hole. And then we move toward this damnable hair-trigger response in our nuclear intercontinental war destructive capability. I think that is what we are referring to, that is what we are concerned about.

The whole stress you are putting in this program in moving away from MPS, in moving away from the ability to protect our ability to respond, is putting this world on the threshold of a who shoots first, and we had better damned well push the button if something is coming at us or if we imagine something is coming at us.

Now, how do you really move away from that problem by putting a 10-warheaded missile in a vulnerable 3-warheaded hole?

Dr. **Wade**. Senator Andrews, let me first note that this is a comprehensive, strategic force modernization program that we are talking about. You understand, that by 1986 we will have the new B-1B bomber starting deployment which has enhanced features toward survivability and endurance. We are including in our force package increased resources which the Congress has strongly supported—toward enhancing the C^3 aspect of the program, which focuses on the question of an enduring capability.

We are including a new D-5 missile for the SLBM force which further enhances force survivability. So, the package as a whole is working by 1986 in the direction of increased endurance and survivability.

Now, to the MX, our goal is a deployment by 1988 or as close thereto as we can come, of a system which provides the survivability and endurance that we are all seeking. We believe that in the interim period deployment of MX adds importantly to the total deterrent posture.

You will notice that one key aspect of the total force aggregate in enduring capability, particularly in the area of C^3, is that we are focusing our resources toward endurance; we are not just adding RV's and bombs to our force.

We are trying to break this one-sided arms race, trying to slow it down at a minimum.

Senator **Andrews**. Maybe my definition of endurance is different than yours. But if you have a hostage missile which you now say our Minutemen are, hostage to the Soviet missiles that are pointed at them and can take them out in those silos, and you sit here and calmly tell this subcommittee—as you did a moment ago—that this new MX is great for our side because it gives us the ability to take out their silos.

Yet, you admit that it is going to be based in a vulnerable mode. I do not know how anybody can comprehend anything other than that we are going to put out this first group of MX birds thinking that we can take out their silos, and the minute we hear, or imagine, or suppose that something is coming at us, we have to push the button because all of those MX's are hostage.

That is the thing that concerns me.

Dr. **Wade**. Yes, sir.

Senator **Andrews**. That is the thing that concerns Senator Stevens.

Dr. **Wade**. May I address your concern?

Senator **Andrews**. Surely, I wish you would.

TOTAL TRIAD FORCE

Dr. **Wade**. The Soviets will not look at just one element of our Triad and judge that vulnerable without worrying about our total Triad force.

Senator **Andrews**. Well, we keep hoping that, and let us hope that the B-1 with cruise missile capability is another capability that is there to launch that followup attack that precludes their moving first.

Dr. **Wade**. Yes, sir.

Senator **Andrews**. The trouble is, you are moving with a major weapon system, the MX system, toward the direction of enhancing the whole hair-trigger problem of nuclear exchange.

Dr. **Wade**. No, sir, not at all.

Senator **Andrews**. Then you say, "Well, the other system is the one that we are working toward, survivability, second-strike capability, deterrent against their taking a first strike."

Then why not spend the extra dollars on the system that we feel does have a survivable capability and that does pull us back from the threshold of this hair-trigger situation?

Dr. **Wade**. In 1986, which is the MX IOC—the initial operating capability—of the missile, there really is no difference in a relative sense in vulnerability at the time you place the first MX in its first silo, the first Minuteman in its silo, or the first MX amongst 10 shelters, or the first MX on a mobile truck. The vulnerability of each example at that time is about the same, for each of these four examples. The relevant time is the FOC; namely, when the total force is deployed. That is the time that you really gain force survivability. From IOC survivability is actually increasing over time, until FOC.

The major change we made in assessing the MX program was to include the criteria that when one looked at the end point you had to ask—where were the Soviets? Namely, were we driving the arms race down, or were we actually stimulating the Soviets to build more RV's and hence defeat the purpose of the program?

This new program approach is looking toward the possibility—and we feel quite optimistic about it—of achieving an enduring capability by 1988. So, in the context of enduring capability, this new approach is more sound, than the approach of the previous team which lacked an end point.

Now, for MX in 1986, we would have a production line underway. That is one of the key aspects of the 1983 request. The Soviets have ICBM production lines underway today. We do not. In order to pressure them to come to the negotiating table, and also be serious toward sound arms control you have to have capable forces or the Soviets may continue to talk while building and the degree of inferiority between us and the Soviet Union in the outyears would increase.

ENDURING CAPABILITY

Senator **Andrews**. Well, Doctor, your rhetoric that constantly restates that we are moving toward an "enduring capability" is great.

The concern and the responsibility this subcommittee has is that we have been turned off so often by people on your side of the table in saying we have this enduring capability—all of a sudden we have an inventory of MX missiles.

You then come to us and say, "Sorry, we have not found the enduring capability and therefore we are going to keep putting them out in these hostage missile silos."

Now, until you come up with some type of a program that gives us some assurance that we do have that enduring capability I cannot help but think that we are just moving toward this hair-trigger reaction.

MULTIPLE PROTECTIVE SHELTER

Let us talk for just a second about this MPS scheme—multiple-protective shelter. I understand the Senate Armed Services Committee still has some faith in the MPS scheme. Has the Defense Department moved totally away from that concept?

Dr. **Wade**. Not from its deceptive aspect, Senator Andrews. One option General Burke mentioned; namely, the option of ballistic missile defense, is taking the approach that the combination of the deception gained in the basing of the ICBM, together with the enhancement that you can get with a preferential BMD deployment, together with the possible enhancement in capability gained from hardening of the silos, results in a force deployed that is optimized; and, in my personal judgment, could well reach a design point where the Soviets might be facing 10-to-1 leverage ratios in the context of what they need to respond and have capability to destroy that force.

Senator **Andrews**. As I understand that concept, you are going to base a cluster of these missiles in superhardened silos, defended by some type of ABM—now you call them BMD, every decade seems to have a new alphabet soup. But can you do that under the treaty we have with the Soviets on ballistic missile defense? Actually it was the ABM treaty. Can we do that without abrogating that treaty?

Dr. **Wade**. Let me address both points. You first described a BMD concept. I would like to note that we are looking at several BMD concepts, and that is one reason why we need more time, before making a permanent basing recommendation.

We need up to 12 months—and I prefer the full 12 months, looking toward the summer of 1983—to have the technical facts in hand. We are taking the approach of working the concepts for deployment of the ABM together at the start with the ICBM concept deployment, so that we have the best chance for an optimal force of ICBM's deployed with a truly enduring feature.

Now, as to the possible abrogation of the ABM Treaty, the ABM Treaty which was signed in 1972 was actually negotiated and went into effect in parallel with what is called the "Interim Agreement."

At that time, there was recognition that the task was not complete. That is, we had not addressed or adequately solved through the SALT negotiations the tough question of the vulnerability of strategic missile forces. That is why the word "interim" was coined for the initial arrangement on strategic missile forces.

It basically gave us 5 years to face up to the complex problem: otherwise, without success, we felt it important the U.S. come back and re-address the ABM Treaty, in the context of what we were trying to achieve. That is to drive down the then two-sided arms competition, enhance further stability as seen then, to improve upon the security of this country.

I should note also that over the past 10 years the Interim Agreement and the SALT II Agreement have not drawn down, as you well understand, the threat from Soviet missiles, and their bomber forces; we have not yet succeeded in reaching this goal through the arms race process.

Therefore, what our study efforts are doing is to review how we should best deploy our system. If the option of ballistic missile defense comes to be the one that provides the best basis for enhancement of security and stability, we would then prepare to examine how to renegotiate the ABM Treaty—looking toward an ABM system that has as a specific objective the defense of our ICBM force.

The Soviets understand this process. You will note that there is provisions in the ABM Treaty that allows, every 5 years, a review of the treaty; and, also this sides through the so-called SCC—the Standing Consultative Commission—can raise matters of this kind at any time either party so desires.

SHOCK SUPPRESSION CAPABILITY

Senator **Andrews**. Doctor, one thing that General Burke told us on the slide was inserting the new MX in a Minuteman silo which we have 300 of in the State that I happen to represent. I am a little interested. I guess if North Dakota seceded from the Nation we would be the third-ranking nuclear power, and we probably produce more wheat than the other countries. It could be interesting. Sometimes it is tempting.

Dr. **Wade**. yes, sir.

Senator **Andrews**. But you are going to slip this down into the Minuteman silo and you show the cushions there. They are very, very short compared to the ones that are there now to protect that missile from the rattle or the shock wave of an impending Soviet strike.

Do you feel that the shock suppression capability of that present silo with the MX in it is as good as that present silo with the Minuteman in it?

General **Burke**. Yes, sir.

Senator **Andrews**. So, your cushioning has been fine.

General **Burke**. There is some additional inherent hardness in the MX missile and its canister that let you then use a firmer shock isolation system than you can with the Minuteman.

Senator **Andrews**. In other words, a Soviet strike that would not take out a Minuteman II missile in the present silo would also not take out an MX missile in that silo. You have that data and you are confident.

General **Burke**. Yes, sir. And one that would do one, would do the other.

EXISTING ABM SYSTEM IN NORTH DAKOTA

Senator **Andrews**. One final observation and I am through, Senator Rudman. Senator Kasten and others have a host of questions.

One final observation, coming from North Dakota were we have not only these Minuteman silos, but also where we have the only existing ABM system—remnants of an ABM system. The concern that I express comes about because of some of the things we have seen the Defense Department do.

You built an ABM system up there. You spent several billions of dollars building it. It did in fact work. The trouble is, it was not cost effective so you shut it down a month after you opened it up. It was not cost effective, as I understand because you had a hundred defensive missiles and it cost the Soviets less to target a hundred missiles at our ABM site than it did for us to maintain that ABM site with a hundred defensive missiles. Cost effectiveness went out the window.

General **Burke**. Yes, sir.

Senator **Andrews**. Had we had 800 defensive missiles around that pyramid, and radar, and computers and all that, I understand it would have been cost effective

General **Burke**. Yes, sir.

Senator **Andrews**. And it probably would have been kept on line. We have gone through that.

I have been out in the field at one of those Minuteman silos and as you know, you have had three field tests trying to get a missile out of those silos.

It is great to stand out in the North Dakota prairie with about 27 flag-rank officers and listen to the countdown a la NASA—you know, we go down to the 3-2-1, and then all you hear is the prairie breeze blow across and rustle the grass a little bit. Nothing happened.

All those generals disappeared in a whale of a hurry and I think they would have given anything for a sergeant with a Zippo lighter down at the base of that silo. But the bird did not go. [Laughter.]

You do not get much press on those things, but having seen three insilo attempted launchings, none of which worked—you have never launched a bird from an operational silo. You built ABM sites that you closed before you barely opened them.

You cannot blame the subcommittee for being skeptical and wondering about this massive new system for which you simply do not have a home, and earlier you stated that, "Yes, we are going to put it in these very vulnerable silos."

How can we be expected to think anything except what the general public should think and expect, that this just moves us one step closer to that hair trigger "We must respond when under imagined attack" type thing that none of us wants to move toward?

We want you to have an MX if you know how you can protect it.

Dr. **Wade**. Yes, sir.

Senator **Andrews**. And how you can maintain a viable response, but we are darned skeptical with the scenario we have seen so far.

Dr. **Wade**. You raise some important points, Senator Andrews.

Looking back to 1969 and 1970—at that time I was senior advisor to Paul Nitze, there was a series of early discussions assessing as to how SALT would come out. There were those who were quite optimistic, and there were those who felt perhaps, at best, nothing more than understanding would come out of it. But there was some initial hope in the sense of trying to drive, to slow down the arms race, in one form or another.

ABM SAFEGUARD ABM SYSTEM

Now, as to the Safeguard system which was terminated in 1972, one of the problems with the Safeguard system was that the Soviet strategic missile threat came faster than we had initially estimated. The Safeguard system did not basically have the inherent room to grow and match the Soviet threat. Hence the site defense program.

What we are talking about here with our new MX program and the associated BMD program is a program viable to the year 2000. You will note that our key focus is to make sure this system will have the viability to respond to any possible and feasible Soviet reactive threat. That is the part you need to focus on in assessing our program.

Now, lastly, is that we need to remain on a stable path in what we are doing. We cannot give a signal to the Soviet Union of vacillation. We met with the Congress 3 months ago: we presented the MX program. We presented the strategic modernization program as an integrated package. The Soviets received the correct signal that the American people, the Congress, the executive branch are now under way with determination to fix the strategic problem. I think it would be a dreadful mistake for us to start vacillating in how we are approaching this most important issue.

Senator ANDREWS. Doctor, none of those of us on this subcommittee want to vacillate. But you touched on the key thing when you mentioned in your comment just now that we want to have the assurance of the viability of the system so it can respond.

Once we have answered that, then there is little question in the justification for spending these amounts of money.

Dr. WADE. Yes, sir.

Senator ANDREWS. But so far at least this Senator does not have that assurance that this is a survivable system.

Dr. WADE. I respect that point, Senator Andrews.

That is why we were asking in the same sense of our testimony about 3 plus months ago of having time to arrive at the facts, and returning to the Congress by the summer of next year, with our position for a permanent basing mode.

Senator ANDREWS. That is right.

Dr. WADE. And we will be there. We are going to make your schedule.

MINUTEMAN SYSTEM TESTING

General BURKE. A very important point, Senator, you touched on lightly in passing, and I would like to get back to it because I would not want an erroneous impression with the media or anyone else.

Senator ANDREWS. I would not want you to leave an erroneous impression, General.

General BURKE. With the Minuteman in its early days, typical of any experimental program, new program, we had our share of problems. But it would be very wrong, completely wrong, to think that there are any questions about the reliability of the Minuteman system, it is tested extensively. We do not do testing from the operational bases and that is a deficiency. But that is a political judgment, not a technical one. The Soviets do.

But we test those missiles regularly. We go to Grand Forks or Minot and by lot we select a missile and a crew.

Senator ANDREWS. You take them out to the west coast and put them in a research silo, and you test fire them.

General BURKE. No.

Senator ANDREWS. Three times you have tried to fire them from operational silos, and you have never gotten them out of an operational silo.

General BURKE. I would like to go into this in a preferably classified session a little more with you. But I would just like to, if you will, restate strongly that we have every reason to have the highest confidence that, if executed by proper authority, the preponderance of our Minuteman missiles will do their job.

Senator ANDREWS. I hope we can have confidence in that confidence, General.

Senator **Rudman**. General Burke, Dr. Wade, I am sure that the two of you must feel like you have been pummeled around for quite a while because, you know, it just seems to me that I have a sudden vision—something seemed familiar.

Of course, this is a complete replay of last year at this time. The only difference is that this year we now have an authorization committee which has decided to draw the line. Of course, if that line stays drawn where it is, then we have some problems.

I do not really want to go over the ground that has already been well plowed by Senator Stevens and Senator Andrews. I want to just take a slightly different approach.

ALTERNATE DEVELOPMENT PROGRAMS

It is apparent to everyone, and certainly ought to be to you, that it is in my view doubtful that you are going to get interim basing for hardened, superhardened or hardened MX sites. I just think that is doubtful.

If in fact that is so, and if in fact the MX has become some sort of a white elephant after all this time—it was supposed to be going to the MPS very soon, according to the previous administration—what consideration have you given to looking at other development programs that you have coming along rather rapidly, that have completely different characteristics in terms of basing, in terms of the problems the size of the MX poses, such as the D-5?

In other words, what thought have you given to saying, "Well, maybe the MX just has to be phased out and maybe our new missile will be the D-5"? We may need somewhat more of them, but what consideration has been given to that?

Dr. **Wade**. Senator Rudman, let me discuss the viability of the Triad. The Triad is designed from the base that the Soviets could not attack the entire force with one type of a weapon system. The Triad is also mutually reinforcing each other. In this sense the MX provides a land-based missile system with a time-urgent, time-responsive, hard-target capability that is needed to redress the margin of safety, and to force the Soviets to start spending money in the benign direction of survivable systems.

The D-5 SLBM missile system will provide an inherent hard-target capability at sea. To attack these two different force elements poses a much more difficult and different problem for the Soviets to include timing.

This package was put together after much analysis and assessment and review. We believe it is the most comprehensive, important approach to be offered in a decade for strategic systems.

Now, when you look well into the 1990's you are looking at new concepts in those outyears. But as you well appreciate, the window of vulnerability is here today. We have to face up now to that window of vulnerability with new weapons and deploy them to the line as fast as technically feasible.

We would like to deploy the MX tomorrow in MX silos. We just cannot do it. The earliest that we can do it with a reasonable management risk is late 1986.

Senator **Rudman**. I think what you meant to say is that you would like to deploy MX tomorrow in Minuteman silos.

Dr. **Wade**. Yes, sir; I'm sorry.

Senator **Rudman**. Well, of course there is a large body of thought—whether you agree with it or not—that says—with the paranoia that exists on the other side—that once we do that, that there is a feeling on the other side that we are adopting a "launch on warning" system—whether or not we are or we are not. You know, we can say it every morning that we are not, but by putting that number of multiple-targeted warheads in each one of those holes we are giving some people the impression that we certainly are not going to stand by and see them wiped out.

We all agree that they could not survive a strike.

Dr. **Wade**. Yes, sir.

Senator **Rudman**. So, where does that leave us?

Dr. **Wade**. Let me try to address your point from a different direction. Today, and for the past 5-plus years, we have been worrying about the vulnerability of our current Minuteman. Now, today when we talk about MX, and the basing mode we want to put the MX in, or the B–1B, once these new force elements are in the force we no longer really worry about the vulnerability of Minuteman. Yet, the Minuteman is going to stay in the force. But the point is that these new deployments basically provide the umbrella through which we believe Minuteman will be secure.

B–1B BOMBER PROGRAM

The point here is that when the B–1B comes on line in 1986—SLBM's being modernized, the C^3 is being improved, our air defenses are being improved. We believe that that element of 40 MX missiles is not sufficient a threat in a first-strike context for the Soviets to consider that an overriding area he has to worry about with sole priority. He has to address the whole force.

The 40 MX missiles do not provide a threat to his total ICBM force. It is yet sufficient in strength to start making him become more interested in improving the survivability of his forces.

For example, if you examine the B–1B and the ATB program, this important program should turn over in a major way the current Soviet air defense deployment. We are talking about resource numbers as high as $100 billion and higher. If the Soviets spend defense money in that direction, he is restrained in how much he has to buy more RV's, more bombs, which directly threaten the United States.

The MX program should force the Soviets to start thinking early toward moving his ICBM's out of their silos and deploying these forces in some sort of a mobile mode. That takes money, as you well understand.

D–5 SYSTEM

As to the D–5 system, ocean area has been quadrupled and he has to spend additional resources or money there.

Each one of these areas, when you look at them in the aggregate, is sufficient in size where he no longer can consider just spending all his money for improved offensive capabilities, that is, accuracy, adding RV's, and bombs. I think we can say with confidence that it should turn the arms race down—which to date has been onesided.

Senator **Rudman**. I do not think you understood my question. I probably did not state it very clearly on the D-5. I understand the current plans for the D-5.

My question really was has there been any consideration given to looking at D-5 as both a land- and sea-based missile?

Dr. **Wade**. Yes, sir, there has been. If we had started this effort maybe 5, even 10 years ago, there could have been some reason to support that direction.

But there are two parts here. One is the need to protect the health of the ICBM industry, and the industry that has been developing our sea-based forces. They work together. There is some competition among and between these two programs; and today, both are needed.

The MX ICBM is the larger missile; and it provides an inherently different type of attack characteristic which we believe is important. The D-5 must be structured to fit in a submarine tube, that gives certain restraints on its size. We would have difficulties in the sense of getting deployed early the accuracy out of the D-5 that we can get out of the MX program. Accuracy, as you know, is important.

Senator **Rudman**. I just want to say, I understand what you have just said, but I think you are missing one of my points and that is, I think I can see where we are going. I do not think we are going to get the kind of basing for MX to have that land-based leg of the Triad that has been on the drawing board for a long time. I think if it was going to happen it would have happened with MPS, and it did not.

Now we are faced with the situation of having a huge missile that because of its very size and its very bulk poses some very unique problems in terms of deployment.

The Townes Report talks about continuous patrol aircraft. Anybody who knows much about aircraft understands the enormous technical problems involved with an aircraft that is both going to have long-range life in terms of sustainability and the power to get that kind of a load off the ground—never mind getting the altitude.

You are talking about a 10-year development program. You are talking about new permanent deployment. The way I have looked at our aircraft development in this country, we will be lucky if we have it by the early 1990's.

So, where do we eventually go with a permanent based MX? That is why I simply suggested to you that one of the things about the D-5 and other smaller missiles is you could have them in a variety of surface-mounted mobile modes, which in my view is where the Soviets are headed, from what we know.

LOADS SYSTEM

I would like to ask you one other question. We talk about BMD. We have people here that I have talked to from the BMD project. Realistically, looking at Loads in particular—to the extent we can discuss it in open session—how close are we to having a system that in fact would be effective in protecting the cluster concept which is part of your new doctrine down there, that at least you are examining? I mean, where are we in that?

Last year the Secretary of Defense said it was still, in his view, pretty much on the drawing board. So, where are we today?

Dr. **WADE**. Let me provide some observations, and then ask General Tate to comment.

The BMD program is now in high gear. We are bringing together what I would consider to be our front burners, to include those getting into a program that has now some reality to it despite the fact that it has been in the doldrums for about a decade. We are optimistic that, in the context of working with the ICBM deployment concepts, we are talking about an initial deployment in approximately the 1988 time period.

BALLISTIC MISSILE DEFENSE SYSTEMS COMMAND/BALLISTIC MISSILE DEFENSE PROGRAM

STATEMENT OF MAJ. GEN. GRAYSON D. TATE, JR.

General **TATE**. Senator Rudman, the BMD program did have a limited budget for a number of years, as I think you are well aware. Therefore, we were not able to pursue the kind of vigorous program needed in order to get ourselves in a posture to rapidly deploy a BMD system.

Specifically, we were denied the ability to develop prototype hardware for several years. Without doing prototyping, it is very difficult to get yourself into a good posture for a rapid deployment.

The last 2 years we have come out of that mode. The restrictions that the Congress had placed upon us with regard to prototyping were lifted in September 1980. We now have a program laid out that is much more vigorous. It is the kind of program that can get us to deployment—a program very unlike what we had between 1975 and 1980.

This program together with a compatible basing mode for the ICBM, can make BMD a very effective way of increasing ICBM survivability and doing it fairly dramatically.

The program, however, does not lead to a system which we can deploy next year or the year after. It is going to take us a few years to put all of the pieces together and do the things that we probably could have done sooner, but have not been able to because of past policy and budget restrictions. The technology is low risk.

[The prepared statement of Maj. Gen. Grayson D. Tate follows:]

PREPARED STATEMENT OF MAJ. GEN. GRAYSON D. TATE, JR.

BALLISTIC MISSILE DEFENSE PROGRAM MANAGER

Mr. Chairman and Gentlemen of the Committee:

Overview

The Ballistic Missile Defense (BMD) program is a vigorous and continuing research and development effort that actively contributes to the US objective of maintaining a strategic balance with the Soviet Union. The BMD program develops and demonstrates BMD-relevant technologies and validates system concepts in order to provide a hedge against technological surprises and to maintain US leadership in BMD technology. This ensures rapid and effective US BMD response options to proliferation of Soviet strategic weapons, Soviet strategic technological advances, and to a potential Soviet breakout from the ABM Treaty. The Army is committed to insuring that appropriate options are available for future strategic decisions.

During the last decade the BMD program has been a Research and Development (R&D) effort constrained in resources and directed by specific program guidance. During this time the main focus of the BMD program was to develop and demonstrate BMD-relevant technology and validate system concepts in order to provide a hedge against technological surprise and to maintain US leadership in BMD technology. With the 2 October 1981 strategic modernization program decision BMD has become a serious option in official US strategic policy. President Reagan's strategic modernization plan includes a vigorous pursuit of an assessment of the feasibility and utility of BMD. Consequently, the BMD program is being directed along a steady and systematic development path which can provide a wide range of possible deployment options for defense of intercontinental ballistic missiles (ICBMs) and other high-value targets in the event the national leadership chooses to deploy a BMD system.

Program Objectives

The main near-term objectives for the BMD program are:

o To design a baseline terminal defense system which has flexibility and endurance and which accommodates, as much as feasible, the alternative ICBM basing concepts directed by the President's 2 October decision. The system should be effective and accommodate changes in basing, or, for that matter, basing combinations.

o To design appropriate variations in this baseline scheme to provide flexibility.

o To develop and test the baseline system in such a fashion as to be consistent with providing a real deployment option.

o To take all reasonable steps in achieving the above objectives to provide as much feasibility verification and analyses, as possible in support of a July 1983 decision.

The primary long term objectives for the BMD program are:

o To to pursue an endoatmospheric nonnuclear kill system.

o To continue development and design efforts on an exoatmospheric overlay system.capability.

o To determine the capability of the analyzed systems to perform effectively under a wide range of conditions.

BMD/M-X Interface

To ensure a coordinated and integrated strategic program, the Army's BMD effort is being fully coordinated with the Air Force within an OSD forum, an Executive Committee, comprised of the relevant principals.

A formal Memorandum of Agreement (MOA) between the BMDPM and the Commander, US Air Force Ballistic Missile Organization (BMO) was signed on 7 October 1980. This

MOA formalizes the relationship between BMDO and BMO, outlines policy and responsibilities, and provides for interchange of technical, operational, and programmatical information. The M-X Program Office, within the BMO, is the BMD Program's greatest source of interaction with the AF to ensure the interoperability of BMD and M-X. Specific areas include engineering development; basing; command, control, and communication; maintenance of deception; organizational and operational concepts; physical security; and support facilities. Coordination channels have also been established with the Air Force Strategic Air Command (SAC) and Air Force Test and Evaluation Center, both of which will play a major role in effective development of BMD and ensure the ability of both systems to operate with each other. In fact, elimination of the MPS basing scheme relieved the pressure of several technical design drivers such as an extreme nuclear environment, preservation of location uncertainty, design of the defense unit platform, and technology to "breakout" through the M-X shelter roof.

Program Structure

The current BMD program structure is being reviewed to insure that the restructured program makes maximum use of the technical progress of the last two decades. The program objectives today are quite different than during the 1975-1980 period due to the recognition that a more balanced offense/defense force mix can improve our strategic deterrent. The R&D effort consists of two complementary program elements--the Advanced Technology Program (ATP) and the Systems Technology Program (STP). The ATP is a broadly-based research effort designed to advance BMD relevant technologies and to explore potentially revolutionary system concepts. The STP integrates those technologies for transition to systems applications in BMD system concepts and validates key issues through simulation as well as laboratory and field testing. (Incidentally, the BMD Program Manager also manages the Kwajalein Missile Range (KMR) as a national range). Progress has been significant in both the ATP and STP programs--the technology base has been expanded and advanced and the system concepts explored have included those employing radar netting, deceptive-basing, long wavelength infrared (LWIR) optics, and a variety of kill mechanisms. The focus will now be on using what has been accomplished to achieve the above listed objectives. Let me address three of the main program efforts in this regard.

The Baseline BMD System Effort

Work proceeds on the Army's near-term terminal defense system, (which has evolved from work done previously in the Low Altitude Defense (LoAD) system). Currently, it is possible maintain the option to defend ICBMs that are either fixed or deceptively-based in any of the deployment schemes being considered. The basing mode for the M-X is an important consideration in the design of a BMD system and a determinant of how effectively the system must perform. However, the lack of a firm basing mode for M-X does not preclude the BMD program redirection nor the acceleration necessary to support the Administration's strategic modernization program.

The principal near term objectives of the Army's BMD Program are to design a baseline BMD system which has flexibility and endurance, which accommodates the alternative ICBM basing concepts being considered as part of the long term strategic program, and to structure the BMD program in a manner that will provide information in support of the July 1983 decision and maintain the option for an early BMD initial operational capability (IOC). For flexibility and endurance the system requirements must be established with full consideration of ICBM basing modes and the BMD system must be capable of defending ICBMs in either the fixed or deceptive-basing configuration. The IOC objective requires that the program proceed on an urgent basis to design, develop, and test the major system components. It is clearly not feasible to wait until after the July 1983 M-X long term basing decision to accelerate the baseline terminal defense acquisition process nor is it reasonable to proceed on a constrained funding basis until that time. The BMD program is proceeding on an accelerated development basis with major subsystem hardware design and development now underway. On this basis it will be possible to support the IOC and also to design, build and test prior to July 1983 those critical hardware elements needed to demonstrate in-hand solutions to the major technical issues.

The Army's request for FY 83 represents a significant increase as compared to the FY 82 funding. The largest portion is required for the baseline terminal defense system ($662.8 million). The primary drivers are the need to support the decision in July 1983 regarding US strategic deployment options and the potential IOC for BMD. Attaining the IOC is not possible without this kind of budget increase. Also, the requirement to develop a flexible

BMD system design capable of defending ICBMs in either the fixed or deceptive-basing modes under consideration requires considerable front-end funding. The increase in FY 83 is principally attributed to system level hardware design and integration and with component testing to support the highly compressed acquisition cycle. A comprehensive set of key tests and demonstrations at the subsystem level will be completed to assure that the system is effective and represents a low risk deployment option. Key components of the interceptor, radar, and data processing subsystems will be demonstrated, including interceptor propulsion flight tests at White Sands Missile Range. It is also planned to complete tests to prove the capability of baseline terminal defense components to operate in a stringent nuclear environment. Completion of significant milestones in planning for production, siting, construction, logistics, operational concepts, environmental impact, etc., will assure the ability to reach the IOC.

The BMD problem is made more difficult because the US is playing catch-up in the systems area--the Army was denied doing prototyping during the late 70s--and it has been necessary to rebuild capability and momentum. The ability to wisely spend the requested FY 83 budget amount on baseline terminal defense is supported by the buildup already experienced with this system since FY 80. The government team and contractor structure have been in place for nearly two years and are ready to expand to planned funding levels in FY 83.

Growth Paths for Baseline Terminal Defense

For extremely large threat levels, BMD has alternative means for maintaining the defense effectiveness of a deployed baseline terminal defense system. These means are identified and discussed in the following paragraphs.

Endoatmospheric Nonnuclear Kill (ENNK)

A major effort directed toward resolving the technical issues regarding ENNK is planned. Development efforts will be pursued vigorously.

Exoatmospheric Defense (XD)

In addition to the above efforts, in order to provide for another potential growth path, work will continue on the exoatmospheric defense program. Emphasis is being focused on exoatmospheric defense to be used in conjunction with an endoatmospheric system such as baseline terminal defense. This is, however, a long term effort. One flight test program is the Homing Overlay Experiment (HOE) flights, planned at the Kwajalein Missile Range. These flights are the first attempt ever made to destroy an ICBM reentry vehicle with a nonnuclear warhead. The HOE will detect and track the reentry vehicle (RV) and the interceptor will home on the RV and destroy it.

Treaty Implications

The BMD program consists of R&D only, and complies with the provisions of the ABM Treaty.

Summary

In summary, the BMD program is a major option in the nation's strategic modernization program. The baseline terminal defense BMD system, as designed, possesses flexibility and endurance and accommodates the alternative ICBM basing concepts being considered as part of the long term strategic program. The Army is committed to balance the BMD efforts (baseline terminal defense, ENNK, and XD defense) among the major objectives discussed at the beginning of my statement and provide high confidence BMD options for the decision the President will make in July 1983 regarding long term M-X basing. This will be accomplished through a vigorous R&D program exploiting available and emerging technologies to increase the cost-effectiveness of BMD systems, to guard against technological surprise, and, most importantly at this time, to mature the technology associated with future system concepts.

BUDGET SHEET

The FY 83 request for the ATP is presented below for major funding areas. The $75.3 million for the exoatmospheric defense includes the development of Forward Acquisition System (FAS) technology. Endoatmospheric defense, which includes ENNK, is currently planned at $49.9 million. The remainder is planned for technology base and program management.

ATP Funding (Dollars in Millions

Endoatmospheric Defense	$ 49.9
Exoatmospheric Defense	75.3
Technology Base	8.0
Program Management	10.0
Total	$143.2

Funding in FY 83 for the STP is presented below for major funding areas. The largest portion is directed toward the baseline terminal defense system. The $662.8 million for baseline terminal defense and appropriate funding in the outyears, will support the planned IOC. The Exoatmospheric Defense program, which includes the Homing Overlay Experiment, requires $39.8 million in FY 83 to complete ongoing effort. The remainder of the STP program for Layered Defense (two-tiered) includes continuing definition of new defense systems against projected threat developments, broad-based system technology support, and program management costs for these efforts.

STP Funding (Dollars in Millions)

Endoatmospheric Defense	$662.8
Exoatmospheric Defense	39.8
Layered Defense	24.7
Total	$727.3*

* Includes $20.8M program management

The FY 83 budget request for KMR is $152.1 milion as shown below. The FY 83 level allows continued operation of the facility, continuation of the technical improvement and modernization program at an acceptable level, reduction in the backlog of major facility maintenance and repair projects, and provides for partial payments to the Government of the Marshall Islands for continued use of the area. If the Compact of Free Association between the US Government and the Government of the Marshall Islands is not consummated and implemented, KMR will have to operate in 1983 under another interim use agreement. The FY 83 budget guidance has been increased by $2.0 million to support an OSD/OMB decision for the Army to fund a portion of the 1982 interim use agreement traditionally funded by the Department of the Interior.

KMR Funding (Dollars in Millions)

Government Support Services	$ 22.1
Materials/Supplies	26.0
Modernization	10.5
Contract Support	87.6
Program Management	5.9
Total	$152.1

BIOGRAPHY
MAJOR GENERAL GRAYSON D. TATE, JR., USA
February 1981

Major General Grayson D. Tate, Jr., was born in Mickey, Texas, on 15 January 1929. Upon graduation from the United States Military Academy at West Point in June 1950, he was commissioned a Second Lieutenant in the Field Artillery.

General Tate holds Bachelor of Science and Master of Science degrees in Aeronautical Engineering from the Georgia Institute of Technology. His professional military education includes attendance at the Guided Missile Officer Staff Course; Field Artillery Officers Advanced Course; United States Army Command and General Staff College; Armed Forces Staff College; Industrial College of the

Armed Forces; and the Advanced Management Program. His decorations include the Defense Superior Service Medal; Legion of Merit with Oak Leaf Cluster; Bronze Star Medal; Army Commendation Medal with Oak Leaf Cluster; and the Purple Heart.

During his Army career, General Tate has had a long association with guided missiles and research and development. All his troop assignments since 1950 have been with missile units. His first experience was gained while firing US copies of the German V-1 missile at Fort Bliss, Texas, in 1951. He later helped activate the Army's first guided missile battalion (CORPORAL Missile) in 1953, and his first command assignment was as a CORPORAL Battery Commander. In 1965-1967, he commanded a SERGEANT Missile Battalion at Fort Sill, Oklahoma. From February to July 1967, he served in Washington, DC, as the Chief of the NIKE-X and Space Division within the Office, Army Chief of Research and Development. Upon graduation from the Industrial College of the Armed Forces in June 1968, he returned to the Office, Army Chief of Research and Development, where he served as the Chief of the NIKE-X Branch until February 1969. For his next assignment, he remained in Washington and served until June 1971 as the Assistant for Missiles, Office of the Assistant Secretary of the Army for Research and Development. He then served as Commander, Fourth United States Army Missile Command, United States Army, Pacific-Korea. In September 1972, he became Director of the Gunnery Department of the Field Artillery School, Fort Sill, Oklahoma. From April 1974 until July 1977, he was stationed at Redstone Arsenal, Alabama. Initially, he served as the Project Manager for the LANCE Missile System. He was promoted to Brigadier General, United States Army, in October 1975, and assumed duties as Deputy Commanding General, United States Army Missile Command. Upon the reorganization of the Missile Command in January 1977, he became the Commanding General, United States Army Missile Research and Development Command, and served in that capacity until July 1977, when he assumed command of Field Command, Defense Nuclear Agency. He was promoted to Major General on 1 January 1979, with a date of rank of 1 July 1975.

On 29 June 1979, General Tate became the Ballistic Missile Defense Program Manager. Headquartered in Huntsville, Alabama, General Tate also serves simultaneousy as the Commanding General, Ballistic Missile Defense Systems Command and as National Range Commander, Kwajalein Missile Range in the Marshall Islands.

General Tate married Anne Hashagen in June 1950. They have four children, Debra, Randy, Lauren, and Lisa.

ACQUISITION, SEPARATION, AND TARGETING

Senator **Rudman**. Well, under the current budget, assuming that it is passed in its present form, at what point would you have answered some of the basic threshold technical questions that have to do both with acquisition, separation, and targeting?

General **Tate**. Sir, the answer to those questions have already been demonstrated. The tests and experiments we carried out subsequent to the Safeguard program and particularly the Site Defense programs in the late 1970's have given us very high confidence that BMD will work effectively. We can perform those functions that were still questionable at the time the Safeguard system was deployed in North Dakota.

Dr. **Wade**. Senator Rudman, I would like to, if I may, add an observation to a comment you made earlier about the fact that the Soviets might well be moving toward smaller, mobile ICBM's.

I think you will agree that the SS–18, which is their large heavy missile and carries upward of 10 RV's, is of a size that a mobile option is really not technically feasible here. And yet, our best information is that there is no interest on the Soviet side to not deploy in even more modernized versions this heavy system. It is in this area where the deployment of the MX, with the accuracy and the Pk it will have against hardened targets, that will provide a significant incentive for moving the Soviets to the negotiating table. With regard to the SS–18, a MX early deployment will help in our goal of eliminating all heavy missile systems.

Senator **Rudman**. Well, now, let us assume for a moment that what has happened in the past week in fact continues to be an occurrence around here and you do not get approval for the interim basing.

Assume that everything else goes forward, the guidance system, the stages of the rocket itself, the entire capsule for the system, all the testing. And assume that your final basing mode examination, which is supposed to be decided, I believe, General Burke in what, early 1983?

General **Burke**. In July of 1983 we owe that to the Congress.

Senator **Rudman**. Then I assume that continues. Am I correct in that?

General **Burke**. If the Armed Services Committee position prevails, we then owe that report in December of this year.

Senator **Rudman**. How close are you to sorting out all these objectives, objective alternatives, in making a recommendation to the President, the Defense Department?

General **Burke**. We have really just gotten under way working toward the mid-1983 time table. As Dr. Wade indicated earlier, that is very valuable time and if we give it up we are going to have to cut a lot of corners.

CONTINUOUS PATROL AIRCRAFT

Senator **Rudman**. Would you care to comment on your view currently on the option of the continuous patrol aircraft?

General **Burke**. I am not optimistic that that will ultimately prevail as a solution. I share your technical concerns with it.

Dr. Wade. You mentioned the Townes Panel. That was a group of distinguished leaders, and they had for their review all the technical input available, and also from a policy aspect. One of their key recommendations was the possible viability of a CPA. It has been my view that that recommendation needs further assessment and that we should wait and take another 6 months to examine it. We now have the Defense Science Board reviewing the survivability aspects of the CPA option.

General Burke mentioned that in his judgment that he is not all that optimistic for CPA. I withhold judgment because I think that we can wait for another 6 months, and see how the DSB review comes out. It is not going to hurt to spend a few more study dollars to assess in detail the recommendations of the Townes Panel, in this rather important new area. We have indeed here new technology. You just mentioned earlier, before the committee meeting started this morning that a new radar technique may be coming on line.

Technology does march on. Where we were in CPA technology 5 years ago, is not where we are today or will be 10 years from now. I just think we ought to be somewhat patient and give the Department the opportunity to review this recommendation, and see where we come in.

General Burke. I would agree with that. You asked my personal opinion, and I would rank the air-mobile system as the third in terms of likely success. But nevertheless, I think it is worth looking at. There is new technology.

Senator Rudman. What is your ranking then, General Burke, from one to three? If that is third, what is one and two?

DEFENDABLE DECEPTIVE BASING SYSTEM

General Burke. Defendable deceptive basing, in my personal opinion, holds out the most promise. I think there is some use for the deep-underground basing for our strategic reserve, that might hold out some promise. The air-mobile system, in my view, is the least likely.

Senator Rudman. Of course, one of the problems with the defendable deceptive basing system is, the Soviets always have the option—as expensive as the option is—to attempt to overwhelm that system—which of course would require a tremendous investment. Of course, that is precisely what people find wrong with the MPS system—right or wrong—that was one of the criticisms of it. If the investment is to be made they can be overwhelmed.

Dr. Wade. That is not completely true, sir. Your comment addresses the key question coming to this committee within the next year. Let me review the technical challenge one more time.

Senator Rudman. All right.

Dr. Wade. The overall force effectiveness of a ballistic missile defense, deceptively based, ICBM, program is gained through the product of the leverage gained from base deception, multiplied by the effectiveness achieved through preferential defense and finally multiplied by the improvement gained through hardening, in the context that such hardening would prevent the Soviets from highly fractionating their MIRV missile systems.

Now, if we can achieve an ICBM deployment for MX where to react it would cost the Soviets three or four more times as much money as we spent in order to add the needed additional capability to his force, then the investment race is not attractive.

That is the objective we are working toward, and that is the question you should be looking forward to as far as the basis for a second decision.

Senator **Rudman**. I think we are looking at that, Dr. Wade.

Dr. **Wade**. We do not have a concept fully developed as of now, sir.

Senator **Rudman**. We do not have the answer. From what we all saw at the DIA threat briefing that we had several weeks ago, I really have to tell you that though I understand the theory and it certainly may work, the Soviets have shown no disinclination to do whatever they thought they had to do, whatever it did to their domestic economy, to their agricultural economy, whatever.

I think we look at the options they have in terms of forcing them into a certain range of expenditures based on what might be a rational response. And from what I saw at that DIA briefing, (which I believe the American people ought to be shown, I told the Secretary that.) I think some of it ought to be declassified, I think the American people ought to know what the Soviets are doing.

There is no rational reason to what they are doing in some of these areas. So, I just wonder whether or not one line in your equation might depend on a type of rationale these people do not possess.

Dr. **Wade**. I agree totally with your comment. The Soviet system also can force and hunker down the living standard of its people. We understand that, and that is one reason it is difficult to be certain in any of this business.

But for the Soviets to start responding to the B-1B/ATB program which now they see as a real program, they cannot wait until 1987 and 1990; it takes time to react to a new system.

Here you are talking about yearly expenditures of tens of billions of dollars in order to respond to the new bomber program. They will probably start responding now to the new D-5 program and to the enhanced C3 program.

Now, the DIA numbers that you raised here are certainly numbers the Soviets are capable of achieving by 1990. But they cannot apply those total numbers to just one of our new weapon systems.

The moneys required by the Soviets are big moneys in each one of the mission areas, and that is the context that I hope your committee addresses the MX problem from, not in isolation, by itself.

Senator **Rudman**. Well, I have a number of other questions which will have to be answered in a closed session or in a private meeting.

Dr. **Wade**. Yes, sir.

Senator **Rudman**. The chairman had several questions that he wanted in the record, I will proceed to those and we really ought not to be here but a few more moments.

I would just say before moving on from what we have been talking about here for the last hour is that I hope that we do not have a situation here where 10 years from now we have a cartoon in the Washington Post, or the New Yorker magazine where we have 200 beautiful new MX missiles standing in a very nice, pristine warehouse some place and the politicians and the generals, and everybody is standing around and the caption reads, "Where shall we put them?" Because that is precisely the way this thing has been going now for the last 3 years.

The Soviets are making their decisions and we seem to be totally incapable of reaching a consensus on what to do with this new "big bird." I think we are going to have to get with it.

Dr. WADE. Yes, sir.

Senator RUDMAN. We are going to have to agree on it. Some of us may disagree, but we are going to have to have a consensus, we are going to have to do something with it, lest we have nothing.

Dr. WADE. Sir, that point is important, we need to get our program to the field, and quit studying the problem.

Senator RUDMAN. Senator Stevens, our chairman, has asked me to just pose this for the record here, I believe to General Burke.

ADVANCED BALLISTIC RE-ENTRY VEHICLE (ABRV)

At an earlier hearing the committee asked the Air Force if it was true that a contract had been awarded on the ABRV—the advanced ballistic reentry vehicle. This new program was identified just this year and no funds have been authorized or appropriated.

The answer to the question, in the committee's opinion, was not adequate and the Air Force has notified us just recently that a contract in fact was awarded. I have a copy of the reply which reached the subcommittee yesterday. I now ask that be included in the record at this point.

[The reply follows:]

PROPOSED REPLY

A letter contract in the amount of $24 million was awarded to AVCO on February 19, 1982 for development of the ABRV aerovehicle. Definitization will take place through the summer with negotiation and signature of the formal full scale development contract in September.

Arming and fuzing subsystem development will be accomplished by the SANDIA Corporation with General Electric acting in a backup role. Contractual actions for this work have yet to be finalized.

Additional costs (fiscal year 1982 dollars) to develop and procure ABRV are shown below by year and by appropriation:

[Fiscal year]

	1982	1983	1984	1985	1986	1987	Total
3600	57	127	141	111	62	11	509
3020		90	83	77	70	52	372
Total	57	217	224	188	132	53	881

Funds for initial work are being drawn from within the MX line on the provision that payback will be effected. A Supplemental Appropriation Request for $57 million has been proposed to cover fiscal year 1982 ABRV work.

NEW PROGRAM AUTHORIZATION

Senator RUDMAN. It seems to me we have a situation where the Air Force has created and initiated a new program obligating about $24 million in a letter contract without any authority or funding from the Congress. We do not seem to be aware of any reprograming requests. So, the committee would like to know just how this was done and what the authority was for doing it.

General BURKE. Yes, sir. We have issued such a contract, $24 million, for the ABRV, using moneys that were authorized and appropriated for the MX weapon system. It has not been the custom in the past for Congress to specifically authorize the various elements and components of a weapon system.

Obviously, it was the intent of Congress that there be an RV to go on that missile and it was thought that that was not an unreasonable decision for the administration to make on its own, within the context of the congressional authorization and appropriation, to redirect from one RV to another.

It was on that basis that that money was used. We have requested $57 million in the supplemental and I guess if Congress is of the opinion that this is the wrong thing to do, that is when they will tell us.

Senator RUDMAN. This program, it is my understanding from the information we have in the reply, is that it is about an $880 million program.

General BURKE. Yes, sir.

Senator RUDMAN. It would seem that although I understand what you said, General Burke, about it being included as part of the hardware obviously, for the MX, that that would be the kind of a substantial program that it seems to me—and I think to the subcommittee generally—ought to be the subject of separate authorization and appropriation.

SUBMITTED QUESTIONS

There are several other questions here which we will submit to you for the record, having to do with that same item and several others. If you could include those in your response at such time as you return the corrected transcript.

[The following questions were not asked at the hearing, but were submitted to the Department for response subsequent to the hearing:]

ADDITIONAL COMMITTEE QUESTIONS

R&D FUNDING ON M-X MISSILE

QUESTION: How much R&D funding has been expended on the M-X missile to date? How far are we through the missile development program?

ANSWER: Prior to the current fiscal year, approximately $2.5 billion had been expended on the M-X program. As of 28 Feb 82, approximately $1.6 billion has been expended on missile related R&D. This is approximately 25 percent of the current planned missile program.

GROWTH IN THE R&D FUNDING FOR M-X

QUESTION: Some $1.7 billion is requested in FY 1983 for M-X missile-related R&D. This is $200 million greater than last year. To what is the growth attributed?

ANSWER: The FY 83 request is larger than the FY 82 amount solely because there are more FY 83 requirements. Under the current program, FY 83 is the peak year for missile related R&D because it is the year when we begin flight testing and culminate development of major missile subsystems.

R&D FUNDING FOR M-X FLIGHT TEST

QUESTION: M-X flight tests begin in January 1983. How much of the missile related R&D funding is strictly for the flight test program?

ANSWER: Approximately $233 million of the FY 83 R&D request is for missile flight testing.

GOALS AND NO. OF FLIGHT TESTS

QUESTION: What are the goals of the flight test program? How many tests are scheduled for FY 83?

ANSWER: Basically, the goals for the M-X flight program are to establish the reliability and accuracy of the weapon system for employment pursuant to the Single Integrated Operations Plan (SIOP). The first flight test is scheduled in January 1983 with one other test flight in FY 1983 (June).

NO. OF FLIGHTS SCHEDULED FOR LIFE OF THE TEST PROGRAM

QUESTION: How many flights are scheduled for the life of the test program? What is the total cost of the flight test program?

ANSWER: We currently plan 20 R&D test flights. The cost of this flight test program, excluding the cost of the missiles themselves, is approximately $860 million.

RE-STRUCTURE FLIGHT TEST IF NO PROCUREMENT FUNDING

QUESTION: If Congress refuses to authorize procurement funding for the M-X, would you intend to re-structure the flight test program? How?

ANSWER: Should Congress refuse to authorize procurement funding for the M-X, the flight test program would have to be evaluated in light of the surrounding circumstances. The deferral of procurement funding for FY 1983 above should not affect the 20 scheduled RDT&E flight tests. The missiles for those tests are not purchased with missile production funds. However, the operational test and evaluation launches scheduled by SAC following the 20 RDT&E tests could be seriously impacted because the missiles for those launches are procured with missile production funds.

M-X CRITICAL DESIGN REVIEWS FOR EACH OF THE FOUR STAGES

QUESTION: Have the critical design reviews for each of the four stages of the M-X missile been completed? How does the decision to use the Advanced Ballistic Reentry Vehicle (ABRV) affect these reviews?

ANSWER: The critical design reviews for the four M-X stages are scheduled for January and February of 1983. Requirements generated by the decision to proceed with development of the ABRV will be fully incorporated into the missile program by the time these reviews are conducted.

The critical design reviews for the reentry system and the ABRV are scheduled for August and October of 1984 respectively.

INTEGRATION OF ABRV INTO THE M-X FULL SCALE ENGINEERING DEVELOPMENT PROGRAM

QUESTION: What has to be done in FY 1983 in the ABRV program to integrate that subsystem into the M-X full scale engineering development program? Wasn't ABRV only in advanced development in the ABRES program as late as last year?

ANSWER: The FY 83 budget includes funding to cover the ABRV requirements. Although ABRV was in the ABRES program last year, it has matured to the point that it can be integrated into the M-X FSED program. Further, with the award of a letter contract to AVCO in February of this year, we have begun to integrate the ABRV into M-X. There will be a preliminary design review in Aug 1982 followed by the flight proof design review in Oct 1982.

ABRV GREATER RISK THAN MARK 12A

QUESTION: Assuming that ABRV can be successfully integrated into the M-X program, does your current schedule requiring a 1986 IOC for the M-X nevertheless involve a greater degree of risk than that for one using the baseline Mark 12A reentry vehicle?

ANSWER: We are confident that the ABRV can be developed and produced in time to meet a late 1986 M-X IOC with moderate but acceptable schedule risk. We are confident of this assessment because the ABRV is quite similar to the MK 12A in most important respects. Critical heat shield and nose tip materials and processes are the same. The ABRV does, however, incorporate minor changes in external geometry, material thickness, mass distribution and structural members that are designed to improve accuracy, performance through weather and resistance to nuclear effects.

The more significant changes have been proven in ground tests and three early prototype flight tests as well as subsystem flight tests. The ABRV aeroshell is considered to be low risk. The advanced fuze for ABRV is considered to be equivalent in development risk to a MK 12A fuze with comparable capability. Both applications are straightforward technologically. The W 87 warhead for ABRV is a sound design that has been tested and can be produced in time to meet the late 1986 M-X IOC.

If the MK 12A and its W 78 warhead would have been retained as the M-X baseline, we would have incorporated the Insensitive High Explosive (IHE) safety feature. Additional underground nuclear testing would have been required in this case to establish the feasibility of the modification.

IHE was not seen as a requirement in the W 78 warheads deployed on Minuteman III missiles, because there were no plans to deploy Minuteman in a mobile basing mode. M-X, on the other hand, could ultimately be deployed in a manner which would require mobility. The added safety margin produced by IHE would have been necessary under these conditions.

HOW FIRM ARE PROCUREMENT ESTIMATES

QUESTION: It's difficult to understand how you can develop a $1.5 billion procurement request for M-X missile production and basing when you haven't even reached the flight testing stage of the R&D program. Just how firm are your procurement budget estimates.

ANSWER: Based on over 20 years of historical experience and proven cost estimating techniques on the Titan, Minuteman, and Atlas programs, we are satisfied that our FY 83 procurement request is firm for the currently planned program.

ADVANCE PROCUREMENT INVOLVE COMMITMENT TO THE ABRV

QUESTION: Does the advance procurement for reentry systems involve a commitment to the ABRV in lieu of the MK 12A reentry vehicle?

ANSWER: Yes. We are budgeting to procure the ABRV, and the procurement requirements are based on these plans.

While this is a commitment to the ABRV, some items (heat shield material, electronic piece parts, etc.) have commonality between ABRV and MK 12A reentry vehicles.

PROCUREMENT ESTIMATES FOR BOTH MISSILE AND BASING EQUIPMENT

QUESTION: Please detail for the record how you developed your procurement estimates for both the missile and the basing equipment.

ANSWER: As previously stated in regard to the firmness of our procurement request, the estimates are made using the same proven techniques used during the Atlas, Minuteman, and Titan programs.

RV in Strategic Modernization Program

QUESTION: Mr. Secretary, did the October Strategic Force Modernization program presume that the MK12A would be used as the re-entry vehicle for the M-X?

ANSWER: Yes, sir. However, the issue of Mk-12A vs. ABRV for M-X was actively under review during that period--with the final decision scheduled for the end of Calendar Year 1981.

Special Nuclear Material Requirements

QUESTION: At the time of the presentation of the plan to Congress, did the MK12A nuclear material requirement pose any threat to the nuclear materials requirement for any other of our nuclear weapons programs? Would you have presented such a program to Congress if it had?

ANSWER: As Congress is aware, our stockpile planning projections have for a number of years (deleted) the DoD and DoE view SNM as a critical national resource which must be carefully managed to ensure that supplies will be sufficient. In this regard, all warhead development programs consciously consider tradeoffs which would conserve SNM, and priority attention is given to design candidates which use these materials efficiently. With respect to the MK12A and ABRV, the key point is that at any equivalent yield the ABRV warhead uses substantially less highly enriched uranium than does the MK12A warhead. Thus, selection of the ABRV at a yield about equivalent to the maximum yield of the MK12A warhead, which we believe at this time will meet MX requirements, (deleted).

As in the past, Congress will be notified of budgetary actions required (deleted).

ABRV and Strategic Modernization Program

QUESTION: Since the presentation of the October 2 plan, the ABRV has been proposed as the replacement for the MK12A on the M-X missile. Why wasn't the ABRV decision made a part of the strategic package?

ANSWER: The year long analysis and debate on which RV should be developed for M-X was not completed in time for incorporation into the Strategic Modernization Program announced last October.

ABRV Decision

QUESTION: Can you go over the post-October events that led to the ABRV decision? What factors precipitated this change in the M-X re-entry vehicle program?

ANSWER: Up until October, the principal sticking points in the selection of the ABRV were the additional expense to the Air Force and the concern that the fuze for the ABRV could not be ready in time for the planned M-X IOC in July 1986. Two changes occurred which made it generally agreed that the ABRV could be selected. First, the Air Force reviewed the progress that Sandia was making in their version of the ABRV fuze and concluded that Sandia was further along than had been supposed. This convinced the Air Force that the Sandia fuze could be available for an IOC in 1986. Second, the Defense Resources Board reviewed the choice and a decision was made to provide the Air Force with funds to initiate the ABRV.

The decision to go with the ABRV was reinforced when the Department of Energy announced that it could not certify the feasibility of incorporating IHE into the Mk-12A warhead until the successful completion of a nuclear test scheduled for the summer of 1982. The uncertainty which accompanies the outcome of any future test had the ironic outcome of making the choice of the Mk-12A more risky than choice of the ABRV.

Fuze for ABRV

QUESTION: Is DoD confident that the Sandia Fuze for the ABRV represents an acceptable risk, from a scheduling point of view? Is DoD now considering a second source for the ABRV fuze?

ANSWER: The DoD has high confidence that Sandia will be able to meet the schedule and deliver the fuze on time. However, it is a tight schedule and there is new production technology involved, so, as a hedge, the Air Force plans to let a contract to GE for a fuze to backup the Sandia effort. This is a prudent (and normal) step to take when there are high stakes riding on the outcome of a development program and when insurance can be purchased at a low cost.

Cost Impact

QUESTION: How much more will the ABRV acquisition program cost than a Mk-12A acquisition program for the M-X missile?

ANSWER: When DoD and DoE costs are combined, the ABRV will cost $932M more than the baseline Mk-12A program. However, the costs are offset by the $259M needed to upgrade the Mk-12A fuze to give it the same effectiveness as the ABRV, and by the value of the oralloy which is saved by using the more material-efficient ABRV warhead. When these items are taken into account, the difference is of the order of $200M.

CAN THE AIR FORCE AFFORD TO DEVELOP ABRV

QUESTION: Can the Air Force afford to develop ABRV? Won't additional ABRV costs tend to strain funding for other needed Air Force conventional and strategic programs?

ANSWER: The cost to the Air Force for the ABRV will be an additional $881 million (FY 1982 $). However, in the broader context of net expense to the Government, this cost will be offset to a large extent by savings in Special Nuclear Materials. At an equivalent yield of (deleted) the ABRV uses considerably less scarce oralloy than does the MK 12A. Across a force of some (d) warheads this results in an approximate savings of (deleted) (FY 1982 $).

Further, if we would have continued with the MK 12A program, an improved fuze would have been included at an additional cost of some $259 million (FY 1982 $). Considered together, these costs tend to balance out the added cost of ABRV to the nation.

As for cost constraints, funding for FY 1983 and beyond was provided to the Air Force at the time the decision to proceed with ABRV was announced. A supplemental appropriations request for $57 million has been proposed to cover FY 1982 ABRV work. If the supplemental is not approved by Congress, then offsets for the ABRV would have to be identified thus constraining other programs.

Material Saved

QUESTION: Why develop an re-entry vehicle with (deleted) warheads when we already have one? Is nuclear material savings the principal factor?

ANSWER: If M-X achieves its accuracy goal, there is not much increase in effectiveness between the (d) yield and the (d) maximum yield. Since the (d) yield requires much more oralloy than the (d) yield, we are planning to use the lower yield while holding open the option for the higher one, should that prove necessary.

The reasons for choosing ABRV are discussed in detail in a later question. Among the reasons it is noted that ABRV uses much less nuclear material than Mk-12A does at equivalent yields. This was an important reason but not the only one!

AMOUNT EXPENDED ON MARK 12A SUB-SYSTEM

QUESTION: How much funding has been expended thus far on Mark 12A sub-system testing and systems integration testing?

ANSWER: Approximately $145 million was expended for RDT&E activities associated with full scale development of the MK 12A Reentry Vehicle for Minuteman III. Through FY 1982, funds spent for adapting the MK 12A to M-X total approximately $55 million. This effort was initiated in FY 1980.

WILL ABRV TESTS DUPLICATE MARK 12 TESTS

QUESTION: Will ABRV have to duplicate any of these tests?

ANSWER: The development objectives associated with the first five M-X flight tests have been crafted to focus upon performance of the missile booster, guidance system and post boost vehicle. The MK 12A reentry vehicles flown on these flights will be used to "fill out" the system, allowing the test program to proceed on schedule.

We believe that the MK 12A can serve in this role well. Additionally, because flight characteristics of the MK 12A are expected to be similar to those of the ABRV, we should be able to make some initial determination of M-X accuracy from the tests.

Defense for the ABRV Decision

QUESTION: Please defend the decision to opt for the ABRV over the Mk 12A.

ANSWER: The decision to develop a new RV for M-X results from the following factors: (1) ABRV is an advanced technology reentry vehicle with improved accuracy, enhanced all weather capability and increased hardness against nuclear effects. (2) ABRV has growth potential for a higher yield warhead which will provide an important hedge against future Soviet initiatives. (3) The ABRV warhead will incorporate modern safety features which will reduce even further the already small chance of a nuclear accident. Some modification of the W 78 (Mk 12A warhead) would have been required to incorporate these features. Additional underground nuclear testing would have been required to establish the feasibility of the W 78 modification. While safety is always important, it is particularly significant for M-X. Two of the candidate basing modes--the Continuous Patrol Aircraft and defended deceptive basing--may involve frequent movement of missiles and thus place an even greater premium on warhead safety. (4) The ABRV will use significantly less nuclear materials than the Mk 12A at equivalent yield. These savings, combined with the cost that would have been required to upgrade the Mk 12A fuze produce offsets that tend to balance out cost to the government of shifting to ABRV. (5) The ABRV provides an important element of diversity and advanced capability in the MIRVed ICBM force. (6) And finally, the ABRV can be developed and procured in time to meet a later 1986 M-X IOC with acceptable schedule risks.

Timing of Decision on Silo-Basing

QUESTION: The near-term M-X basing plan involves deploying 40 M-X missiles at a Minuteman Wing beginning in FY 1986. When will you decide where to make the initial near-term deployment, assuming such plans are funded by Congress?

ANSWER: That decision is scheduled for this Spring.

Silo-Basing Location

QUESTION: Are you at liberty to discuss the leading candidate wing under consideration?

ANSWER: We believe it would be inappropriate to speculate on the results of an ongoing analysis.

Site Selection Criteria

QUESTION: Please review the principal criteria for determining the near-term basing selection for the M-X?

ANSWER: The selection of the Minuteman wing is a decision that involves the President directly. We therefore believe it is not only inappropriate but impossible for the DoD to specify the criteria he will use. Our expectation is that the criteria will be made available at the time the Presidential decision is made.

FY 84 AND FY 85 FUNDING PROJECTIONS FOR SILO BASING

QUESTION: The near-term silo basing request for FY 1983 is $715 million. What are the FY 1984 and FY 1985 funding projections?

ANSWER: As the program is currently envisioned, we have budgeted $442 million in FY 84 and $229 million in FY 85 for R&D of the basing mode.

TOTAL COST OF NEAR-TERM BASING

QUESTION:: What is the total cost of the near-term basing plan? How much of this is silo-related?

ANSWER: Total cost of near-term basing program is $19.3 billion in FY 82 dollars, including $2.5 billion of prior year funds. Approximately $2.6 billion is solely related to silo basing.

ENVIRONMENTAL IMPACT STATEMENT ON NEAR-TERM BASING

QUESTION : Would an Environmental Impact Statement be required?

ANSWER : After the proposed action and alternatives are determined, the Air Force will prepare an environmental assessment. If the environmental assessment indicates the proposal will result in a significant impact, an environmental impact statement will be prepared.

IMPACT OF NEAR-TERM BASING TERMINATION

QUESTION: What impact would Congressional termination of the near-term basing program have on the M-X industrial and engineering program effort?

ANSWER: Termination of the near-term basing program would have minimal impact on the M-X industrial base assuming another basing approach was selected in its place. Without such a decision for redirection to another basing mode, major M-X basing contractors would be without an M-X basing contract and draw down their work force accordingly. Substantial time and funding would be required to regenerate this team and would inevitably impact the ability to deploy the system.

NO. OF INDUSTRIAL WORKERS ON M-X PROGRAM

QUESTION : How many industrial workers are committed to the M-X program?

ANSWER : Approximately 11,000 industrial workers among major M-X contractors and another 9,000 among subcontractors are currently committed to the M-X program.

RESTRUCTURE OF M-X PROGRAM IF NEAR TERM BASING IS TERMINATED

QUESTION: How would the Air Force and industry work to restructure the M-X program, if the near-term basing program is terminated? Would this require even greater funding down stream?

ANSWER: We would work closely with industry to redirect work toward survivable M-X basing. If the time span between interim and survivable basing contracting requirements became excessively long,ruling out redirection as a course of action, we would proceed on a case-by-case basis to stop work on or terminate near term basing efforts. Of course we would prefer to redirect whenever possible,as termination of contracts with subsequent new starts at a later date could lead to much higher costs because of the need to renegotiate new contracts and because contractor teams, lost to other projects in the interim, would have to be reformed.

Silo-Hardening

QUESTION: Last year Congress specified in the Defense Appropriations Bill that silo hardening could only be considered as part of a permanent M-X basing plan. It could not be done separately or on an interim basis. What consideration is being given to silo hardening in your planning for the defended, deceptive basing option? For fixed silos?

ANSWER: As part of our work on the Ballistic Missile Defense option for long-term M-X basing, we are addressing the suboptions of deceptive basing of various components and hardening the various structures that would be involved. The basic consideration is that hardening and BMD are complementary because the hardening puts a limit on the fractionization that would otherwise be encouraged by BMD.

COST OF MINUTEMAN SILO HARDENING PROGRAM

QUESTION: Would the additional cost of Minuteman silo hardening program still be less than 20 percent of the total basing cost as we were informed last year?

ANSWER: As the near-term program is currently envisioned (i.e., 40 M-X in Minuteman silos), the cost associated with superhardening these 40 silos is still less than 20 percent of the total basing costs.

HARDENING COST FOR THE DEPLOYMENT OF 100 M-X MISSILES IN MINUTEMAN SILOS

QUESTION: What would be the hardening cost for the deployment of 100 M-X missiles in Minuteman silos? (Last year we were informed that the hardening cost for 40 M-X's at Minuteman fields would be $910 million.)

ANSWER: As you are aware, we are no longer planning to superharden the Minuteman silos for M-X deployment and have suspended efforts in this regard. We have not performed any cost excursions beyond the original 40 silo case.

Use of Hardening

QUESTION: Doesn't hardening make sense only in the context of fixed ICBM silos, with no deceptive basing? We wouldn't want to harden empty silos.

ANSWER: Hardening makes sense technically whenever it influences enemy planners in ways that are beneficial to us. We must also, of course, concern ourselves with costs, so the right answer must be design-dependent. We are not yet at the stage in our work where we are willing to eliminate any reasonable options.

BASING RELOCATION

QUESTION: Would we consider silo relocation or basing the M-X at defended, deceptive sites other than our current ICBM wings?

ANSWER: Yes. We are not limiting our defendable deceptive concepts to the areas near current ICBM wings.

FUNDING REQUIRED FOR DUPLICATION OF BASING INFRASTRUCTURE SUPPORT

QUESTION: Couldn't we base them in a defended, deceptive system at Nellis Air Force Base or White Sands? If we did, how much would that cost in additional funding required for duplication of basing infrastructure support?

ANSWER: Yes, it appears feasible to have a defendable, deceptive system at Nellis AFB or White Sands. Of course the cost of such a deployment would depend on system size as well as location. We do not have cost estimates for such a postulated deployment; however, locating on an existing base will be less costly than building a completely new base because of the base infrastructure already in place which can be used to support the M-X deployment.

ADVANTAGES OF MISSILE RELOCATION

QUESTION: Would missile relocation have other advantages? Some say the Soviets have already targeted our Minuteman III silos. Would the advantages of locating the M-X outside of existing ICBM fields outweigh the disadvantages?

ANSWER: There are both advantages and disadvantages of locating the M-X outside existing ICBM fields. We will be evaluating those tradeoffs as we study long-term basing over the next year.

CONTINUOUS PATROL AIRCRAFT BUDGET REQUEST

QUESTION: The CPA budget request is $74 million. What is this $74 million to be used for?

ANSWER: The $74 million requested is divided into the following categories:

Item	Funding
Aircraft System Studies	$14.0M
Technical Analysis Studies	5.0M
Composite Technology	10.0M
Composite Wing Section Buildup	5.0M
Advanced Propulsion Technology	10.0M
Guidance Update-Missile	5.0M
Command, Control, Communications	5.0M
Proposal Preparation - Contractors	20.0M
Total	$74.0M

NEW CARGO AIRCRAFT TO CARRY M-X

QUESTION: The only operational experience we have had with an air-launched ICBM was the demonstration of a Minuteman launch from a C-5 in 1974. We are talking about a missile, the M-X, which is much larger than that Minuteman.

Would we not have to build a fleet of entirely new cargo aircraft to carry the M-X?

ANSWER: The Continuous Patrol Aircraft option is designed to provide a new aircraft that is capable of carrying and launching an M-X missile. Advanced composite technology, aircraft design, and advanced propulsion systems may allow development of an aircraft which may prove survivable and cost effective. Our research and development between now and July 83 is designed to determine CPA survivability, feasibility and cost effectiveness.

NO. OF AIRCRAFT NEEDED TO SUPPORT 100 OPERATIONAL MX MISSILES

QUESTION: How many aircraft would be needed to support 100 operational MX missiles? What would be the total acquisition and life-cycle costs of such a fleet of aircraft?

ANSWER: All of our information is from work done to support the Townes Panel last summer. Because of Congressional funding restrictions, there has been no additional effort on CPA in the areas of fleet size or acquisition and life cycle costs. Information developed last year indicated that the fleet size required to support 100 M-X missiles with 50 airborne at all times must be structured using a ratio of 2-3 aircraft for every one required to be airborne.

Acquisition and life cycle cost estimates were very preliminary and were broken out as follows in FY 1982 constant dollars: acquisition, $30-37 billion; and operations and support of a full operational capability system approximately $1 billion per year.

Accuracy of M-X CPA

QUESTION: Would a CPA basing mode for the M-X have as a prerequisite the need for either the Navstar GPS system or a ground-based positioning system in order to provide good accuracy? Are we confident that such a system would have the same accuracies as a land-based system for M-X? Would we perhaps need a higher yield warhead to ensure hard target kill capability?

ANSWER: We know that the unaided accuracy of an M-X air-launched in the CPA mode will be less than that of a silo-launched M-X. The determination of the extent of that degradation and methods for compensation are some of the tasks we had planned to address at the time we failed to receive Congressional authorization for that project. Answers to these questions are not available at this time.

QUESTION: What are the attributes of the CPA approach?

ANSWER: Unique attributes of the Continuous Patrol Aircraft (CPA) concept include survivability features quite different from those of the existing legs of the strategic Triad. Since aircraft survivability is critical to viability for ICBM basing, the Defense Science Board is conducting an in-depth analysis of this system against future Soviet threats. A preliminary DSB report on this analysis is due in July 1982. Another attribute is that the system maintains the concept of "separate" strategic force components because it does not possess technical failure modes in common with the land based ICBMs, submarine forces or bomber forces, i.e., the current Triad. The CPA does not depend on base escape or penetrating air defenses to do its job. Any attempt by the Soviets to counter the CPA will definitely stress them technologically, and perhaps fiscally, in ways not now required. CPA concept appears to offer a large potential for many other applications (ASW, AWACS, C^3, etc.) besides carrying ICBMs.

QUESTION: Would the aircraft be potentially vulnerable to air intercept or nuclear barrage attack?

ANSWER: The Defense Science Board is currently examining the question of CPA survivability and will issue an interim report in July 1982. They are examining nuclear barrage and air intercept, among others, as potential threats to the CPA. Previous studies on this subject by government and industry organizations indicate nuclear barrage is not feasible as a Soviet tactic because of the inordinately high numbers of warheads required. It has been postulated that several air intercept techniques may prove viable as a threat to CPA, and these systems are now being studied in depth by the DSB.

QUESTION: What command and control changes would use of continuous patrol aircraft entail for U.S. strategic planners? Is this a positive or negative feature?

ANSWER: The Aeronautical Systems Division of the Air Force Systems Command, the Townes Panel, and some airframe contractors have addressed command and control of CPA and none have found this to be a major issue. The CPA would be continuously in those control loops currently used for submarine and bomber command and control. As a matter of fact, the CPA would make an excellent communications relay platform, either active or passive, and consequently has a great potential to increase the reliability of the submarine/bomber communications net. Since no new dedicated systems are required and the aircraft has the potential to improve existing systems, the CPA could be considered a definite positive feature in the C^3 structure.

Deep Basing

QUESTION: Why would we want to put our most advanced missile, with 10 re-entry vehicles on it, in a basing mode which cannot guarantee quick response time?

ANSWER: More and more it appears that some mix of modes may be the best answer. In that context, basing M-X thousands of feet in the ground offers survivability and endurance surpassing that of other modes we have studied to date. Those crucial characteristics would provide us the means for resisting post-attack threats, coercion, or demands and for increasing significantly our chances of prevailing in that environment. It should be noted that the Air Force is working hard at design variations for deep basing that would offer relatively quick response times.

DEEP BASING VARIANTS BEING STUDIED

QUESTION: What deep basing variations are being studied? How firm are the cost estimates for these systems? Please be specific.

ANSWER: The Deep Basing concepts being studied have M-X missiles contained in launchers deployed in deep underground tunnels or shafts. Vertical shafts or horizontal tunnels could be interconnected or independent,with support equipment, launchers, egress machinery and muck handling equipment uniformly distributed, deployed in interconnected clusters, or located in a central sanctuary. Characterization and definition of potential systems must be accomplished before making cost estimates.

DIFFERENCES BETWEEN HARD TUNNEL DEEP BASING AND UNDERGROUND MISSILE COMPLEX

QUESTION: What are the major differences between Hard Tunnel deep basing and the so called Underground Missile Complex?

ANSWER: The Air Force is not aware of any specifically named Deep Basing modes; however, independent, clustered and centralized areas for missiles and support equipment are being studied.

REACTION TIME FOR UNDERGROUND MISSILE COMPLEX

QUESTION: The Hard Tunnel concept is criticized because its reaction time would be extremely slow because of a dig-out requirement. Would reaction time for the Underground Missile Complex be faster? Isn't this still much slower than silo-based ICBMs?

ANSWER: Egress technology is a key portion of the Deep Basing program. Initial areas for study include rapid excavation, operation in unstable geologies, muck removal equipment and disposal methods, and determination of post-attack surface condition. While the launch times for silos are well established, the egress methodologies and times for Deep Basing are still under investigation.

While the underground missile complex does offer the possibility of reaction times approaching those of silos, it is not likely that an extremely quick reaction time for any deep based M-X concept could be developed without sacrificing survivability. This issue must be studied further before final design objectives are determined.

NO. OF M-X MISILES HOUSED IN A DEEP BASING COMPLEX

QUESTION : How many M-X missiles would be housed in a deep basing complex? How many launch ports would there be? How long would it take to launch the remaining M-X missiles in the complex after the first volley has been fired?

ANSWER : The number of missiles and egress ports could be varied dependent upon the Soviet threat. Reaction time will be dependent upon proximity to the surface and the egress technology employed in any given concept, but could vary from minutes to hours.

SURVIVABILITY OF THE LAUNCH PORTS

QUESTION: Would the launch ports be survivable to nuclear weapons effects? How can we know this in the absence of a technology demonstration? Once the launch ports have been opened, wouldn't they be vulnerable? Couldn't a second-wave Soviet attack or a barrage attack properly timed create vulnerability problems for the system?

ANSWER: Survivability of the launch portals would be dependent upon whether they were presurveyed or excavated as needed. Proof-of-principle tests will be conducted as a key part of the egress technology work. A second wave Soviet attack could make portals vulnerable only in as much as enemy intelligence cycle time allowed location of egress routes.

Deep Basing Variations

QUESTION: Would deep underground basing tend to drive the Soviets toward deployment of heavy megaton, single RV ICBMs as a counter to this basing mode?

ANSWER: Yes, sir.

SOUTH-SIDE "MESA BASING"

QUESTION: Does south-side "mesa basing" provide better responsiveness than basing in underground mountain complexes?

How many sites in the U.S. could accommodate south-side mesa basing?

ANSWER: South-side basing,or terrain enhancement of a near surface deployment mode,could possibly provide an added degree of Soviet near-term targeting uncertainty. It is too early, however, to conclude that any near surface system such as shelters is any more responsive than Deep Basing. Geotechnical siting studies are just beginning and it is not known how many sites could accommodate a south facing deployment.

CURRENT SPENDING PLANS FOR DEEP BASING FOR THE M-X

QUESTION: What are your current spending plans for deep basing for the M-X in FY 1982? How much funding is required in FY 1982 to permit detailed concept definition?

ANSWER: Deep Basing funding in 1982 will be used for both government unique and contractor efforts. Half of the $28.5 million being dedicated to Deep Basing this year has been provided to other government agencies for study of nuclear effects, power, heat, life support and mining technology. About forty percent of remaining funds have been earmarked for competitive procurement of egress demonstration and system support work.

Other resources will be used to accomplish command, control and communications work and geotechnical/siting analyses.

We are confident that sufficient work can be completed to permit development of a sound recommendation by July of 1983.

REPROGRAM FUNDS FROM ASMS FOR MX DEEP BASING

QUESTION. Will you formally ask to reprogram funds from the Advanced Strategic Missile Systems (ASMS) program for MX deep basing?

ANSWER. The Advanced Strategic Missile Systems (ASMS) program is described to the Congress in the FY82 DOD Descriptive Summary for Program Element 63311F. ASMS tasks include the conduct of advanced development for missile, basing, and reentry systems. With M-X basing work currently in the advanced development phase, ASMS and M-X efforts are interrelated and complementary. No reprogramming of ASMS funds for M-X deep basing advanced development is deemed necessary.

SHIFT FUNDS FOR ABRES INTO A NEW ASMS EFFORT

QUESTION. How can you shift funds ($100 million) specifically appropriated for ABRES into a new ASMS effort without a reprogramming?

ANSWER. In June of 1981, DOD changed the Advanced Ballistic Reentry Systems (ABRES) program name to the Advanced Strategic Missile Systems (ASMS) program, reflecting an expansion in scope to include advanced development of missile, basing and reentry systems.

We have allocated FY 82 funds within ASMS (Program Element 63311F) in a manner consistent with task descriptions in the FY 82 ABRES Descriptive Summary submitted to Congress and consistent with ABRES Congressional language related to the FY 82 Defense Appropriations Bill. Therefore, reprogramming of funds because of a program name change alone would not be appropriate.

QUESTION: How do you intend to spend the $10 million appropriated by Congress for Continuous Patrol Aircraft (CPA) in FY 1982? Will you release all or part of that $10 million so that detailed engineering work on CPA can begin?

ANSWER: Because of restrictions applied by the Authorization Conference, the $10 million appropriated for CPA in FY 82 will not be spent until the Congress authorizes the expenditure. If the Defense Science Board's report, to be released in July 1982, indicates the CPA is a survivable system, the Department of Defense will request that Congress authorize the $10 million so the Air Force may begin feasibility studies and concept definition work with major aerospace contractors. At this time, we do not envision that $10 million to be used for detailed engineering work.

QUESTION: What are the results of our current assessment on CPA survivability?

ANSWER: The Defense Science Board is examining the survivability of the CPA and will issue its interim report in July 1982. At present, it would be premature to offer conclusions. The Board is looking at projected Soviet threats through the 2005 period and any possible U.S. countermeasures. Preliminary analyses by the Townes Panel indicated the CPA is, potentially, a highly survivable system and consequently their work was the genesis for forming the DSB committee to examine this most critical aspect of the concept.

VARIATIONS OF DEFENDED DECEPTIVE BASING

QUESTION: You are requesting $109 million for the M-X? Please outline the variations of defended deceptive basing which you are considering.

ANSWER: The studies which have been initiated are designed to look at a large variety of defended deception basing options, all of which are compatible with ballistic missile defense. Such things as fixed hardened shelters, ground mobile vehicles and air cushion vehicles are under review. The objective is to identify the one or two most promising concepts to allow more detailed concept definition during FY 83. The $109 million is requested to support that detailed development work to allow for a final basing decision in July 1983.

R&D FUNDS EXPENDED IN THE M-X PROGRAM ON DECEPTIVE BASING OR MPS CONCEPTS

QUESTION: How much R&D has been expended thus far in the M-X program on deceptive basing or multiple protected structure (MPS) concepts? Do our current M-X planners draw on any of the knowledge gathered from that effort? How?

ANSWER: We have previously expended approximately $700 million of R&D funds on the multiple protective shelter basing concept. However, much knowledge gained from the MPS experience is directly transferable to our current planning, for example, transportation and handling requirements for large missiles and numerous other areas as well.

Deceptive Basing of BMD Components

QUESTION: What would be the problems and costs involved with deceptive basing of ABM radars and interceptors? Would preservation of location uncertainty still be a problem? What about the hardness of the radars to the effects of electromagnetic pulse?

ANSWER: Deceptive basing of BMD components (radars and interceptors) represents, at this time, an uncertainty that must be resolved through the BMD development and test programs, but we do not foresee any fundamental difficulties. We are considering techniques similar to those considered for M-X in the MPS basing mode, and are utilizing the experience gained in that effort. However, the BMD components are much smaller and lighter than M-X so we expect that deception will be much easier to achieve, and the system is able to defend itself. Using preferential defense concepts increases the leverage offered through such deployment.

The estimated development and deployment cost of a BMD system employing deception is about 25% less than a fixed BMD system capable of providing the same effectiveness against the same threat.

Preservation of location uncertainty would be required for a deceptively based BMD system but we do not believe it will be a major problem because of the size of the components.

Our design studies indicate that the BMD radars can be adequately shielded from electromagnetic pulse but this remains to be verified. We had an extensive electromagnetic hardening program associated with the SAFEGUARD BMD system and that program was quite successful.

Defended Deceptive Basing Options

QUESTION: What are the major features of the following defended, deceptive basing options?

1. defendable modular array basing (variation on MPS)
2. Minuteman Area Interspersed deceptive basing
3. dense pack variation of modular array basing

ANSWER: The Defendable Modular Array Basing concept is based on deploying a number of modules consisting of several new hardened vertical capsules to house M-X. These modules would be arranged on existing DoD installations with large land areas, so that no new bases would be required. Deployment geometrics depend on hardness and land availability, but range from one third to two nmi separations. Maximum use would be made of protective terrain features, and both M-X deception techniques and BMD systems can be employed to ensure survivability. As deep basing technology matures, it could be deployed to augment the modular arrays. The advantages of DMAB includes its restriction to DoD facilities, with minimal disruption to public and private land use. It gives great strategic flexibility through diverse technological growth options that can offset potential Soviet threat reactions. In addition, DMAB is founded on proven technologies. The main limitation of DMAB is the potential impact of displacing the current DoD users.

The Minuteman Area Interspersed Deceptive Basing concept would deploy additional hardened vertical M-X capsules among the Minuteman silos. One hundred M-X could be deployed in

1000 capsules, with spacing optimized to be compatible with BMD. Growth paths involve deploying or improving BMD systems, first with terminal low altitude defenses, then expansion to exoatmospheric systems later. The advantages are enhanced BMD leverage and channeling Soviet threat reactions into penetration aids development. The drawbacks include difficulty of providing for M-X, and possibly BMD, deception and movement due to road and terrain limitations and relatively high population densities, and the necessity to use privately owned land.

Dense Pack, now called Closely Spaced Basing, uses superhardened vertical shelters placed very close together so that initial attacking warheads will destroy surrounding warheads upon detonation and so that resulting nuclear effects limit the size and pace of any subsequent attack. In this way, particularly in conjunction with some augmentation as basing to use protective terrain, deception, and BMD, the survivability offered by Closely Spaced Basing is largely indifferent to the threat size and contributes significantly to deterrence. An M-X deployment of 100 missiles could be constrained in a 10 square mile area, thus fitting easily on existing DoD land.

Shelter-to-Missile Ratio

QUESTION: What kind of shelter to missile ratio is required if you opt for deceptive basing of the missile and ABM defense?

ANSWER: We may deceptively base the missile, or the BMD radars, or the BMD interceptors, or some combination of these to achieve an optimum design; and it may turn out that there are some important interdependencies among the various ratios involved. It is too early in our analyses to know the optimum shelter-to-missile ratio for any of the various basing approaches using deceptive basing.

High Relief Basing

QUESTION: Please discuss the so-called "High Relief" basing plan and its compatibility with ballistic missile defense.

ANSWER: While there is no basing plan by that name, we are looking at ways to base on the south side of mesas in order to complicate the targeting problem of an attacker. Taking advantage of natural terrain in that manner forces an attacker to consider alternative tactics that can make their attack more vulnerable to BMD.

Cost Estimates

QUESTION: Please provide an estimate of the acquisition cost for the following BMD related basing options (all assume that 100 M-X missiles would be deployed):

(1) (Deleted)
(2) (Deleted)
(3) Layered Defense
(4) Endo NNK

ANSWER: The cost of a system is dependent upon deployment scenario, deployment date, threat, and technology maturity. Accordingly, system costs are based on differing deployment quantities and provide a (d) survivor level against varying threat levels. The following cost estimates reflect DOD acquisition costs in constant FY 82 dollars (DOE costs excluded) for the initial deployment of an endoatmospheric nuclear system (deleted) followed by an exoatmospheric Overlay system. Cost of an endoatmospheric nonnuclear system is unknown at this time.

BMD System	Acquisition Cost (Billions of Dollars)
(1) (Deleted)	(D) ± 10%
(2) (Deleted)	(D) ± 15%
(3) Layered Defense	(D) ± 15% *
(4) Endoatmospheric nonnuclear BMD	Unk

* Assumes Underlay (deleted) BMD.

Associated with each cost figure is a percentage representing the confidence in the estimate.

BMD Costs

QUESTION: The BMD systems technology is an R&D program which has been with us for many years. How much confidence do we have in our BMD cost estimates?

ANSWER: The cost estimating process for BMD is considered sound. There exists a highly skilled in-house independent parametric estimating capability that validates program cost estimates utilizing empirical data from Safeguard, Site Defense, and other relevant DOD systems. Varying degrees of maturity in design, requirements, and technology affect confidence levels more than the estimating process. Therefore, estimating confidence is high in the Baseline Terminal Defense (endoatmospheric nuclear) System, moderate in exoatmospheric nonnuclear kill (NNK) systems, and limited in endoatmospheric NNK systems since there have been more definitive defense system designs associated with endo nuclear and exo nonnuclear than for endo NNK systems.

QUESTION: Are these cost estimates more or less reliable than the deep basing or CPA cost estimates?

ANSWER: The figures in our budget request are our best estimates of what needs to be spent studying the three options of BMD, Deep Basing, and CPA. Those estimates have equivalent reliability. In no way, however, are those estimates an indication of the acquisition costs of those types of systems. Such cost estimates do not exist because the systems have not been designed, only conceptualized.

Systems Technology Budget

QUESTION: The BMD systems technology R&D budget for FY 1983 is $727.3 million. How much of this funding is for low-altitude intercept programs as compared to the exoatmospheric R&D program.

ANSWER: The planned breakout of low altitude defense and exoatmospheric defense funds for the Systems Technology Program is as follows:

FY 83 Funding (Millions of Dollars)

Low Altitude Defense	662.8
Exoatmospheric Defense	39.8

BMD Warheads

QUESTION: Are we still primarily looking at nuclear warheads or is greater emphasis being placed on nonnuclear interception? What is the breakdown in the FY 1983 budget for low altitude nuclear and non-nuclear kill interceptor programs?

ANSWER: The curent plan is to develop the Baseline Terminal Defense System (previously LoAD) interceptor with a nuclear warhead in order to achieve a high kill probability and have it operational by (deleted). Even though the nuclear warhead was selected as the baseline, the BMD Organization will continue research and development on nonnuclear kill (NNK) capabilities. For more than a decade, the Army has asembled theoretical and experimental lethality criteria for NNK; however, the technology for endoatmospheric NNK is not sufficiently mature to meet the Baseline Terminal Defense System development schedule.

Greater emphasis is being placed on NNK. The endoatmospheric NNK program (deleted) currently programmed in the AIC for endo NNK in FY 83. Approximately (deleted) the remainder will be associated with the nuclear system. (Deleted) that amount in FY 83.

In addition to endo NNK, the BMD program is on the threshold of demonstrating exoatmospheric NNK. (Deleted) the Homing Overlay Experiment (HOE) will demonstrate exoatmospheric homing and non-nuclear kill of a US reentry vehicle in flight tests at KMR. NNK technology is more difficult and less mature in the endoatmosphere than in the exoatmosphere but validation of endoatmospheric NNK is a long range goal.

Endoatmospheric Technology Systems

QUESTION: Why should we pursue both nuclear and nonnuclear kill for LoADs?

ANSWER: In order to support the President's strategic force modernization plan and provide a high confidence BMD deployment option in (d) the Baseline Terminal Defense System (previously referred to as LoAD) development is proceeding with a concept which employs a nuclear warhead. The technology associated with endoatmospheric nonnuclear kill (NNK) has (deleted) the scheduled Baseline Terminal Defense System deployment date, the option for an effective, high confidence nonnuclear system. NNK interceptors are being viewed as potential replacement or augmentation options for the basline system.

There are a number of obvious advantages which would accrue to the defense if an NNK capability were available. These include the following: greater public acceptance, ease of transport and deployment, no nuclear release requirement, (deleted), no self-inflicted nuclear blackout, greater testing flexibility during R&D and deployment, and greater siting flexibility. These advantages apply to both the endoatmospheric and exoatmospheric NNK systems. Therefore, an effective NNK capability will be pursued as a growth option for BMD.

Funding Profile

QUESTION: Why haven't you developed a post-1984 funding profile for the BMD option? Shouldn't a profile be developed soon? Can you provide us an estimate of how the BMD R&D budget profile will look after FY 1984 if a BMD related option is selected?

ANSWER: The Baseline Terminal Defense System (previously LoAD) is being developed for defense of US ICBMs deployed in any of a variety of basing concepts. The funding projection for this BMD system will be dependent upon the ICBM basing configuration selected. The choice of M-X basing mode will influence BMD system requirements and, therefore, corresponding outyear costs. At this time, the BMD Organization has validated funding figures for RDTE only and only through FY 83.

BMD Technology Improvements

QUESTION: What improvements have been made to ABM radar technology and data processing technology that provide us greater confidence in the LoAD system over its Safeguard predecessor?

ANSWER: The application of proven BMD principles and techniques and innovative technology over the past 5-10 years has enabled dramatic improvements in BMD capability. Advances in technology and changes in BMD concepts are the two major reasons for the greater confidence in current BMD systems over Safeguard. Specifically, as a result of improvements in microelectronic components and fabrication techniques, the size and unit cost of BMD phased-array radars and data processors have been substantially reduced and capabilities have increased. This allows a BMD system to effectively employ increased numbers of small radars and to be compatible with (deleted) (a major problem with Safeguard). Today, BMD radar designs have increased capability to (deleted). One system design employs (deleted). The Baseline Terminal Defense System (formerly LoAD) design includes (d). Greater radar effectiveness is also achieved by the multiple face radar design, which gives increased battlespace, and by improved guidance schemes.

Advances in flight electronics and most other missile components provides systems which are more reliable, cheaper, and less susceptable to nuclear effects. Technology and techniques have been developed and demonstrated which can confidently perform the critical BMD functions of traffic handling and discrimination. The signal and data processing subsystems planned--for both the Baseline Terminal Defense System and (d) missile, and interceptor--have capacities and reliabilities that were unheard of a few years ago, i.e., capabilities of instructions per second in a volume of about two cubic feet. These devices apply the latest techniques in microelectronic circuits and distributed data processing techniques. Missile guidance accuracies are improving to the extent that BMD is now confidently planning to demonstrate nonnuclear kill of an ICBM reentry vehicle in the exoatmosphere at Kwajalein Missile Range (d). The BMD program is also proceeding with technology programs designed to solve the more difficult problems of nonnuclear kill in the endoatmosphere. All of these BMD advances, when coupled with employment schemes that provide maximum BMD leverage against the offense lead to an improved cost-exchange ratio for the defense versus the offense and provides greater confidence in the Baseline Terminal Defense System.

Interceptor Comparisons

QUESTION: How does the LoAD interceptor compare with the earlier Sprint II interceptor?

ANSWER: The two-stage Sprint II had a much longer flight time and slower missile airframe response than does the Baseline Terminal Defense System (BTDS) (previously LoAD) intereceptor. Sprint II was controlled using air vanes rather than jet interaction controls. (Deleted) tolerable to the BTDS interceptor. Physically, the Sprint II was one-third longer and one-third heavier than the BTDS interceptor. The single-stage BTDS interceptor is designed for relatively close-in intercepts in a blast environment requiring extremely rapid response and high maneuver levels.

BMD Development Program

QUESTION: LoADs is being restructured from a pre-prototype demonstration to an accelerated development effort. What LoADs development projects are to be conducted this year that will help provide us high confidence that LoADs will meet the projectd threat?

ANSWER: The Army is seeking to show the ability to package a BMD system to defend ICBMs in a variety of potential basing modes and develop that system on a schedule to support a July 1983 Presidential decision date and a (deleted) IOC. We are confident we can do this, but it requires more effort and dollars than designing the defense for a single basing mode. Since October 1981, the Army has been working on a "common system" terminal defense design which is sufficiently flexible to provide adequate defense effectiveness for ICBMs which are either fixed based or deceptively based in silos. We believe we have found solutions to this challenging requirement.

Support for the 1983 decision will be provided in the form of reviews, evaluations, and demonstrations which are designed to give high confidence in the system and subsystem designs. Some of the most significant efforts to be completed before July 1983 are as follows:

- Full Baseline Terminal Defense System (previously referred to as LoAD) design reviews.
- Interceptor (deleted).
- Interceptor initial propulsion test vehicle flights at White Sands Missile Range.
- Data processor hardware (deleted).
- Radar (deleted).
- (Deleted).
- Completion of the initial operational and organizational concept; initial production and deployment plans; the program management plan; and the environmental assessment program management plan.
- Validation of the life cycle cost estimate for the Baseline Terminal Defense System.

Radar Vulnerability

QUESTION: Isn't the vulnerability of the radar to nuclear weapons effects still a major concern? Would LoADs have more radars than the SAFEGUARD system?

ANSWER: The vulnerability of the BMD radar to nuclear weapons is a concern; however, based on BMD Organization (BMDO) studies and analyses relative to the effects of a nuclear environment on BMD radars there is high confidence that the Baseline Terminal Defense System (previously LoAD) radar will survive in a tactical nuclear environment. One reason for this is that the dramatic reduction in cost for current LoAD like radars allows for employment of larger numbers of them.

During a ballistic missile attack, ground based BMD radars would be subjected to an environment which includes nuclear burst generated dust, debris, and blackout, as well as tank breakup clutter. Rocks and sizeable ground particles in the form of nuclear ejecta, caused by a ground burst, can cause mechanical or physical damage to radar subsystems. Over the past decade, the BMDO has greatly expanded the understanding of the phenomenology associated with these environments. This has enabled the BMDO to develop and demonstrate technology and system concepts that can mitigate the effect of these environments.

(Deleted).

BMDO is confident that the radar can survive in a tactical environment.

The SAFEGUARD system used very few large radars. The Baseline Terminal Defense System concept employs many small radars (deleted) (deleted) reduces the likelihood of being destroyed by an offense attack.

Radar Data Base

QUESTION: How much confidence do we have in the radar data base for LoADs?

ANSWER: The radar data base for Baseline Terminal Defense System (BTDS, previously referred to as LoAD) is derived from previous BMD programs and will be complemented by additional planned measurement programs; there is high confidence in the adequacy of this comprehensive radar data base. To understand this position it is necessary to review some of the BMD history in this area.

During the 1958-1978 time period, a large radar measurements program was conducted by the BMD community on programs such as Nike Zeus, Nike-X, Safeguard, and Site Defense (the Systems Technology Program). These measurements were coupled with a very active theoretical analysis program. The cumulative funding of these radar data base programs was on the order of $1B. The major measurement efforts were taken by sensors located at Kwajalein Missile Range (KMR), at the Delco Gun Range, and by the advanced range instrumentation ship (ARIS).

(Deleted). These demonstrations were highly successful and showed a capability to separate RVs and decoys under System Technology Program conditions.

The Delco Gun Range, located at Santa Barbara, Ca, (deleted). In addition to low cost, this facility allows one to control conditions very tightly and to measure many parameters which cannot be measured in the field. (Deleted).

The ARIS program has obtained a very large data base (deleted).

The BTDS program is the beneficiary of this large data base but it must be recognized that BTDS conditions are a substantial departure from the previous emphasis. The X-band frequency of BTDS is about 70% higher than C-band and almost a factor of three higher than S-band. The frequency scaling required because of this departure is not expected to create a major error (deleted).

The BTDS discrimination is first making use of theoretical analysis based upon existing data. The Delco range is being used as a valuable source of experimental data gathered for BTDS conditions. A new X-band dish radar, the Signature Measurements Radar (SMR), was built for the BTDS program and is now operational at KMR. This radar has gathered data on two dedicated missions and on several targets of opportunity. (Deleted).

In addition to these data gathering programs, a substantial demonstration program will be conducted at KMR after the BTDS phased-array radar is operational. An effort is being made to maintain as much flexibility in the BTDS discrimination process as possible in order to incorporate data gathered during this demonstration (deleted).

Survivability and Fractionization

QUESTION: What is the more cost-effective way to achieve ICBM survivability against Soviet ICBM fractionization--ballistic missile defense or deceptive basing of the missile?

ANSWER: It is not possible to answer the question in the general case because the costs are design-dependent. For example, a BMD directed primarily at countering fractionization would probably include deceptive basing of the radars or the interceptors or both. We have not reached the design stage that allows cost estimates to be developed. It might turn out that superhardening is the most cost-effective counter to Soviet fractionization.

Sufficiency of LoADS

QUESTION: Could LoADS alone give us sufficient protection of fixed ICBM silos? Would we need either deceptive MPS basing for the missile or an overlay to guarantee sufficient survivability for our ICBMs?

ANSWER: We do not believe that LoADS-like deployment alone would provide sufficient protection of fixed ICBM silos. We do believe that a possibly sufficient combination consists of a terminal-defense system plus hardened silos plus deceptive basing of the missile or BMD radars or interceptors or a combination of these latter options. We are studying this question as part of our preparation for submitting a recommendation to the Congress by the required date of 1 July 1983.

BMD Warhead Requirements

QUESTION: Wouldn't we still have to use nuclear warheads for the LoADs interceptor? Does LoADs interception require nuclear warheads? Would this pose a future nuclear materials production problem for us?

ANSWER: The current Baseline Terminal Defense System (BTDS) concept (LoAD derivative) is envisioned to initially have interceptors with nuclear warheads. Against high threat levels, (d) nuclear or nonnuclear interceptors.

The Endoatmospheric Nonnuclear Kill (ENNK) program is considered a growth path for the BTDS to counter increased threats. As a separate major BMD effort, it is estimated that the (deleted) mature ENNK technology, the BTDS will have to initially use nuclear warheads. Endoatmospheric nonnuclear kill interceptors, if successfully developed, could replace or augment the initial deployment of nuclear interceptors

If a decision were made to deploy the BTDS, the requirement (deleted).

BMD Component Spacing

QUESTION: How important is silo interceptor and radar spacing in these plans? Doesn't this have significance for radar survivability against the effects of electromagnetic pulse?

ANSWER: Spacing between ICBM silos is a very important factor for terminal BMD systems like Baseline Terminal Defense (previously LoAD). For most ICBM basing modes, the Baseline Terminal Defense system would be (d) system effectiveness levels off.

In the case of (deleted).

Electromagnetic pulse (EMP) is one of a number of nuclear effects which cause concern. As spacing decreases the EMP environment increases. Most Baseline Terminal Defense concepts place the components of the defense (interceptor silo, and radar) (deleted).

BMD Acceleration

QUESTION: Two years ago the Los Alamos Scientific Laboratories assessment on the state of the art of BMD technology stated that (deleted).

Was that assessment valid then, and would it be now? Could the LoADs program be accelerated?

ANSWER: A LoAD-type endoatmospheric system (deleted).

The current effort referred to as Baseline Terminal Defense System (previously LoAD) is proceeding as an accelerated development effort to support the upcoming M-X basing decision and a potential (d) BMD IOC. (Deleted).

Exoatmospheric Defense Components

QUESTION: What are the main components of a homing overlay exoatmospheric ABM defense system?

ANSWER: Current system concepts for exoatmospheric (deleted).

All components of the defense system would be (deleted).

Layered Defense

QUESTION: How would a homing overlay system work in conjunction with a site defense of fixed ICBM silos?

ANSWER: An exoatmospheric Overlay BMD system, combined with an Underlay (such as the Baseline Terminal Defense System or Site Defense), would form a robust two tier layered defense and is applicable for defense of a variety of targts, (deleted). The Overlay (first tier) would perform intercepts in the exoatmosphere and the Underlay would engage those reentry vehicles which leak through and are not intercepted exoatmospherically.

At the appropriate time after receipt of an attack warning, (deleted). Any threat objects missed by the Overlay tier are then preferentially intercepted by the terminal underlay tier, thus providing a very low leakage layered defense system.

NNK Technology

QUESTION: What advantages are there to using a nonnuclear warhead interceptor for this system?

ANSWER: There are a number of obvious advantages which would accrue to the defense if a nonnuclear kill capability were available. These include the following: greater public acceptance, ease of transport and deployment, no nuclear release requirement, . (deleted) ,no self-inflicted nuclear blackout, greater testing flexibility during R&D and deployment, and greater siting flexibility.

Layered Defense Availability Dates

QUESTION: If a decision were made now to deploy M-X in Minuteman silos and protect the system with a "layered" ABM defense, what IOC and FOC could be achieved for the homing overlay part of the system? Would the U.S. deploy the low-altitude defense first, and then follow-on later with the overlay?

ANSWER: The Baseline Terminal Defense System (BTDS) (previously referred to as LoAD) is based on technology which has matured through previous BMD programs such as Safeguard and Site Defense. The BTDS program is currently an accelerated development effort to provide the option for an initial operational capability (IOC) in (deleted).

The technologies necessary for implementation of BMD exoatmospheric systems concepts (deleted).

Based on the urgency to provide for enhanced US ICBM survivability, it would be prudent to consider a sequential layered defense deployment. Such a deployment would involve an initial BTDS deployment in (deleted).

Soviet Response to a Layered BMD for M-X

QUESTION: Would we expect the Soviets to fractionate missile warheads and deploy many penetration aids and decoys on their ICBM re-entry systems if we went this route?

ANSWER: Probably, in the absence of other U.S. steps such as further hardening the silos, we could expect that sort of response. But more importantly, we look forward to a Soviet reaction to our total comprehensive strategic modernization program of moving away from the past "one-way" arms race--to enter serious negotiations towards reductions in such arms.

AIRS GUIDANCE SYSTEMS PUT INTO THE MINUTEMAN III

QUESTION. Opponents of MX development argue that the AIRS guidance system being developed for the MX could be put into the Minuteman III as an alternative to developing the MX. How much would it cost to put AIRS into the 600 Minuteman III force?

ANSWER. Current estimates for adapting the AIRS guidance system for Minuteman III and deploying it on 600 missiles range as high as $12 billion.

MODIFICATIONS OF MINUTEMAN III SUB-SYSTEMS TO ACCOMPLISH THE AIRS INTEGRATION

QUESTION: What modifications of Minuteman III sub-systems would be required to accomplish the AIRS integration? What would be the costs? Would it be worth the investment?

ANSWER: It has been estimated that the total cost for deploying AIRS on 600 Minuteman IIIs could be as high as $12 billion. Of that sum, we estimate that up to $6.0 billion may be required to develop and test an AIRS adaptation for Minuteman III application; develop flight software; conduct ten proof flight tests; procure about 800 sets of hardware; and deploy the system.

The remaining $6.0 billion would fund the necessary silo modifications and ancillary support hardware. The major modification involves a reconfiguration of existing power systems, as AIRS has a larger power requirement than the existing NS-20 guidance set. The one major support item is an in-silo heat exchanger to function with the AIRS fluid cooling system.

In light of the amount of work to be done to the silo, it may be possible to perform the silo tasks for costs more on the order of about $3.0 billion, for a total integration cost of about $9.0 billion. A large amount of engineering work would have to be done before we would be in a position to adequately reduce the range of estimates for incorporating AIRS on Minuteman III.

Even at the lower end of the wide range of cost estimates, we do not believe that incorporating AIRS on Minuteman III would be a worthwhile investment, and it certainly would not fulfill the M-X requirement. Minuteman III's three-reentry vehicle configuration cannot be increased. Each M-X is able to carry up to 11 ABRVs.

Minuteman III is a 20 year old weapon system. We have been, and intend to continue, maintaining the viability of this missile. But with no active production line, we have a limited number of flight test assets to test AIRS or any other improvements. M-X, with its more current technology, will update our ICBM forces and be able to provide the desired characteristics, such as improved accuracy and increased range-payload options.

SHORT-TERM INITIATIVES TO IMPROVE THE SURVIVABILITY OF MINUTEMAN III FORCE

QUESTION. If the near-term MX basing plan is deferred by Congress, what other kinds of short-term initiatives could be taken to improve the survivability of the existing Minuteman III force?

ANSWER. In terms of hardening against nuclear effects, there are no short-term initiatives to further improve Minuteman III survivability. The Upgrade Silo Program, conducted between 1971 and 1980, increased silo hardness to about (d) psi (the 150 Minuteman II silos at Ellsworth AFB, SD possess a hardness of about (d) psi). To go above (d) psi, far greater costs would be incurred due to the need for major reconstruction.

There are several improvements being made or being considered which could enhance the use of those missiles which do survive. We are deploying 50 Minuteman III MIRVed missiles in place of single-reentry vehicle Minuteman IIs, thus adding 100 warheads to the inventory.

We are deploying the new MK12A reentry vehicles, with the higher yield warheads and improved fuzing options, on 300 Minuteman IIIs. New lithium batteries are being produced for 200 Minuteman III silos to extend by a factor of 15 the amount of time that emergency power will be available to launch the missiles. An expansion of the battery program, to include additional silos, is under consideration.

Three improved communications systems are being installed in all Minuteman launch control centers to enhance connectivity with higher authorities. The Minuteman III Guidance Upgrade Program will incorporate a flight software revision and a new guidance set measurement technique to improve CEP.

The Airborne Launch Control System Phase III program would provide airborne missile crews the added capabilities to retarget and receive alert status information directly from the missiles. This effort was cancelled in 1981, but is being discussed for a future restart.

These improvement programs, coupled with numerous reliability and maintainability modifications, will ensure Minuteman's continued viability through the 1990's. This is essential as we work to solve the ICBM survivability problem in the longer term with the deployment of M-X in a new, survivable basing mode.

MODERNIZATION AND REBASING OF MINUTEMAN III ICBMs

QUESTION: Have you ever considered modernization and rebasing of Minuteman III ICBMs in multiple vertical shelters? Why or why not?

ANSWER: We did consider modernization and rebasing of Minuteman III ICBMs in multiple vertical shelters. The Minuteman system was estimated to require 2 1/2 years for development of missile modifications and an additional 2 1/2 years for production, assembly and initial deployment.

In parallel activity, facility design and construction was estimated to require 5 years. This included preparation of an environmental impact statement, land acquisition, and construction of roads, utilities, and shelters. The time and substantial investment required did not justify deploying an aging missile, a product of 1960s technology in such a basing mode.

VERTICAL MPS BASING OF THE MINUTEMAN III FORCE

QUESTION : Would not vertical MPS basing of the Minuteman III force provide a much quicker solution to the ICBM vulnerability problem than any of the M-X basing plans now under consideration?

ANSWER : No. It would require 2 1/2 years for development of missile modifications and an additional 2 1/2 years for production, assembly, and initial deployment. At the same time, facility design and construction would require 5 years.

MINUTEMAN MPS PLAN COMBINED WITH BALLISTIC MISSILE DEFENSE

QUESTION : Could a Minuteman MPS plan be combined with ballistic missile defense?

ANSWER : Yes. Deceptive Minuteman basing could be combined with ballistic missile defense. Many defendable deceptive basing concepts, some including Minuteman silos, will be studied over the next year as part of the long term basing program.

MPS for Near-Term Solution

QUESTION: Why don't we deploy the Minuteman in an MPS mode to solve the near-term ICBM vulnerability problem, and then proceed with the M-X in one of the other long-term basing modes, such as deep basing or CPA?

ANSWER: One of the drawbacks of the MPS approach rejected by President Reagan was that there was no appreciable near-term increase in survivability. With MPS, force surviviability increases as the deployment continues, reaching the required level only at full deployment.

SAFEGUARD Site Utilization

QUESTION: What were the results of the 1980 Army study on the potential value of utilizing the Stanley R. Mickelsen Safeguard Complex (SRMSC) for strategic defense?

ANSWER: The study resulted in the identification of a number of potential BMD related missions which would require use of the SRMSC. Based on these results, action has been initiated to retain the SRMSC, both tactical and non tactical facilities, pending decisions on the basing option for M-X and the future role for BMD.

Potential Systems

QUESTION: What ICBM defense systems have been identified as having potential for deployment at this site?

ANSWER: The 1980 Army study identified five candidate BMD missions for SRMSC site exploitation. Four of these were single mission programs designed to provide limited operational effectiveness within ABM/SALT constraints. The four dedicated missions were (deleted).

Since the 1980 study, the BMD Organization has performed other studies that have shown that SRMSC could be utilized as a base for (deleted) (deleted) and (3) other ICBM defense options, such as an initial deployment of Baseline Terminal Defense Systems for M-X deployed in existing Minuteman silos.

Army-Air Force Study Coordination

QUESTION: Have the Air Force and Army had any coordination in the development of these studies? Why, or why not?

ANSWER: The Perimeter Acquisition Radar Characterization Systems (PARCS) Defense and the Survivable Optical Forward Acquisition System (SOFAS) studies were coordinated with the Air Force through the OSD directed ICBM basing study completed in 1981. The other concepts have been identified to the Air Force through working level meetings.

There is currently extensive coordination between the Army and Air Force on BMD concept studies. This coordination is being focused through the OSD Executive Committee. Army/Air Force coordination is performed on studies that may have an effect on programs of mutual interest such as SOFAS and M-X defense. Coordination on these programs allows for mutual understanding of interfaces, joint use of facilities, and overall cost effectiveness optimization of the offense/defense system interface.

System Deployment

QUESTION: Why shouldn't we reactivate the one ABM site we are allowed under the ABM Treaty to get operational experience with the LoAD system technology? How soon could this be done? What would be the cost? Would this be an efficient use of economic resources?

ANSWER: It would not be possible or desirable to reactivate the old Safeguard site at Grand Forks, North Dakota. Safeguard technology is obsolete. Neveretheless, a limited BMD deployment would be an excellent vehicle to demonstrate command, control and communication (C^3) and to develop doctrine, logistics procedures, and operational experience. (Deleted).

SOFAS Location

QUESTION: Could this site be utilized for the Survivable Optical Forward Acquisition System (SOFAS)?

ANSWER: The Safeguard site in North Dakota could be utilized for the SOFAS. If fully funded, a SOFAS development (deleted).

QUESTIONS SUBMITTED BY SENATOR GARN

COST IMPLICATIONS FOR THE M-X PROGRAM

QUESTION : What are the potential cost implications for the M-X program of the decision by the SASC to delete all procurement funds ($1.5B) for the M-X from the FY 83 Defense Budget?

ANSWER : As stated previously, deleting the FY 83 procurement request will increase total program cost by approximately $250-300 million.

POTENTIAL IMPACT OF SASC DECISION TO DELETE PROCUREMENT FUNDS

QUESTION : What is the potential impact of this decision on the IOC date for M-X deployment?

ANSWER : We estimate, as I stated earlier, that a delay in production until FY 1984 will cause a minimum one year slip in the M-X IOC.

SecDef Response to SASC

QUESTION: I understand that Secretary Weinberger was to report back to the SASC by last Friday to indicate how DoD intended to meet the requirement of a long-term, survivable basing decision by December of this year. Did the Secretary respond to the Committee's request, and what was the essence of that response?

ANSWER: The Under Secretary of Defense for Research and Engineering responded on 26 March 1982. He expressed disappointment in the Subcommitte's position and extreme concern about the deletion of procurement funds in FY 1983. He noted that this latter action would delay IOC by more than a year, damage the momentum of the highly successful missile program, and, possibly most important of all, delay still further the date at which the Soviets will have incentive to stop their arms build up and negotiate seriously for major reductions in nuclear arms. The response went on to explain the President's program, the one approved by the Congress last year, as the most prudent course of action. He asked that the Subcommittee's position be reconsidered.

Strategic Nuclear Strategy

QUESTION: In its August 5, 1981, report entitled "Countervailing Strategy Demands Revision of Strategic Force Acquisition Plans", the GAO made a number of observations that I believe have implications for the MX program. Those observations included the following:

"The current Triad forces were not designed to carry out the employment strategy that has evolved through the 1970s...existing weapon systems do not have the proper combination of characteristics needed to ensure that an effective response can be carried out against the full range of targets under all the circumstances inherent in countervailing strategy.

In terms of the required performance characteristics defined by us and combinations of those characteristics, we believe

— none of the Triad components combine both timeliness and strong hard target capability..."

"Minuteman III missiles, the most sophisticated and accurate ICBMs in inventory in 1980, have warhead yields that are relatively low and three warheads per missile. The probability of damage to a Soviet target hardened to 2,000 pounds per square inch (psi) with a single Minuteman III/MK-12 warhead is low".

"Existing ICBMs have no meaningful single-shot capability for destroying Soviet targets that have been substantially hardened (possible command bunkers and certain ICBM silos), even though countervailing strategy increased the emphasis on striking those targets. The low single-shot probability of damage of Minuteman III against these targets would require use of several warheads against each target. However, the limited number of U.S. ICBM warheads currently available effectively precludes multiple targets (i.e., missile silos, nuclear storage sites, and C^3 facilities)".

Given these observations, I would first like to ask what our strategic nuclear strategy is? Has the Reagan Administration designed its strategic force modernization program to complement the countervailing strategy articulated by former Secretary of Defense Harold Brown? Does the document PD-59 provide the basis for our country's nuclear targeting doctrine and strategy?

ANSWER: The United States' nuclear policy has been historically, and remains today, the deterrence of nuclear war. In order to continue to successfully deter we must clearly demonstrate to any potential aggressor that he cannot realize his geo-political objectives by a recourse to nuclear warfare. Put another way, we must have the ability to hold at risk the full range of assets which an aggressor considers important for his war effort, including those which are hardened. This is consistent with the historical evolution of U.S. strategic nuclear policy. Our force modernization program has been specifically designed to realize these objectives through a synergistically inter-related effort to enhance and modernize our C^3I system, the ICBM, bomber and SLBM legs of the Triad, and strategic defenses. Specifically, the decision to deploy the MX ICBM in a survivable basing mode (or modes) and to proceed with the Trident II (D-5) SLBM will end the current Soviet near-monopoly in prompt hard target kill capability which they have accumulated in the process of their relentless drive for superiority. In this light, it is particularly important to realize the earliest possible deployment of the MX ICBM in order to rapidly provide us with the needed prompt hard target kill capability. The full implementation of the President's program is fully consistent with, and supportive of, the objectives stated by the Secretary of Defense in the current Annual Report to the Congress, namely: "The United States will maintain a strategic nuclear force posture such that, in a crisis, the Soviets will have no incentive to initiate a nuclear attack on the United States or our allies. U.S. forces will be capable under all conditions of war initiation to survive a Soviet first strike and retaliate in a way that permits the United States to achieve its objectives."

Alternative to M-X

QUESTION: There are those who would argue that we don't need the M-X, irrespective of the basing mode controversy. In fact, some have argued that in a period of budget austerity, the U.S. should rely on an upgraded MM force in conjunction with an accelerated TRIDENT II missile program to provide the U.S. with the prompt, hard target kill capability we are striving to gain with the M-X. Would you please comment on this argument, particularly in terms of its impact on our nuclear strategy, effective deterrence and budgetary considerations?

ANSWER: Timely deployment of the M-X is essential to the maintenance of an effective deterrent. Neither the Trident II an upgraded Minuteman force nor a combination of the two is an adequate substitute. While the Trident II will have a prompt, hard target capability and be survivable when deployed on submarines at sea (the survivability of Trident II on submarines in port will be low), it cannot provide those unique elements characteristic of land-based ICBMs--dependable, real-time communications with command authorities, alert rates approaching 100 percent and a vulnerability mode different from that of SLBMs and bombers. These capabilities are crucial to the effectiveness of our deterrent force and cannot be found in any other strategic system. Moreover, the Trident II will not be ready for deployment until 1989--three years after initial M-X deployment. The possibility of a one-year acceleration of the Trident II's initial deployment is being examined, but the impact of such an acceleration on missile accuracy and development cost has not yet been fully assessed.

The Minuteman ICBM cannot match the accuracy or throw-weight of the M-X, nor could any conceivable upgrade of this missile force provide us with sufficient prompt hard target capability to pose a credible counter to the prompt, hard target monopoly currently enjoyed by the Soviet Union. What's more, effective deterrence requires the deployment of survivable, enduring strategic systems. Viewed in this sense, no upgraded Minuteman force can be satisfactory in the long-term because Minuteman is already becoming vulnerable to Soviet attacks. An alternative is to rebase an upgraded Minuteman III force to provide long-term survivability and endurance. Doing that could require significant redesign of the missile to accommodate a harsher transportation and handling environment. That would look like a new missile program in terms of cost and time to acquire. Without such a redesign (and, to a lesser extent, even with such a redesign) such a deployment involves gambling that the long-term viability of a new ICBM basing mode would be well served by a missile whose engines and basic technology would be approximately 20 years old at the time of deployment. We could not support such a gamble. There remains the possibility of upgrading Minuteman III as an alternative only to the interim basing of M-X in Minuteman silos. We have looked at that possibility and seriously doubt if it could be ready as soon as the M-X missile itself and it would have much less capability. The costs would be significant, and, in this case, additive to those of the M-X missile, thus adding significant and unnecessary costs in a period of budget austerity.

In short, we see no way in which an upgraded Minuteman force in conjunction with an accelerated Trident II missile program competes successfully with M-X.

Importance of Prompt Hard Target Capability

QUESTION: Why is it necessary for the U.S. to possess a prompt, hard target kill capability, such as that provided by M-X?

ANSWER: Over the last decade and a half, the Soviet Union has made a concerted effort to significantly increase its offensive strategic capability. To the detriment of the strategic balance, this effort has paid off handsomely in the development and deployment of a substantial number of large, accurate ICBMs. It is the Soviet monopoly in prompt, hard target kill capability provided by this force that the M-X, with its own prompt, hard target characteristics, is designed to counter. With this capability, the M-X will bolster deterrence by eroding Soviet confidence in their ability to successfully conduct offensive strategic operations and, thus, their ability to find military solutions to their political aims. In addition to strengthening deterrence, deployment of the M-X's prompt, hard target capability will deny the Soviets the sanctuary their ICBMs currently enjoy and will force the Soviets to divert resources from further enhancement of their offensive systems into efforts to increase the survivability of their existing systems.

Question: In comparison to the US target structure, does the Soviet Union pose a significantly more challenging task to US nuclear forces, in terms of the number and hardness of targets we would need to strike in order to possess either a first-strike capability or a retaliatory capability able to execute a countervailing strategy?

Answer: The Soviet target structure poses a significantly greater challenge for US nuclear forces. By comparison, the Soviet target structure (composed of targets that have been identified and located) is approximately (deleted) as its US counterpart and contains approximately (deleted) the number of hard targets (a hard target is a target with a hardness greater than 30 PSI overpressure). These differences are expected to widen as the known Soviet target structure is enhanced through the identification of additional targets which reflect the transition from (deleted). These additional targets will be, in part, hard; reflecting the deliberate steps taken by the Soviets to make their targets resistant to US retaliatory capability.

INTENT TO INCREASE MM III FORCE

QUESTION. Does the Air Force intend to increase the MM III force from 550 to 600 missiles? How many MM III missiles does the Air Force intend to equip with the MK-12A warhead? Are the accuracies and hard-target kill capabilities of our MM III missiles equipped with the MK-12A equal to those we anticipate to achieve with the MX?

ANSWER. We do intend to deploy an additional 50 Minuteman IIIs in Minuteman II silos. We believe that this new deployment is a desirable change to our ICBM force structure, as it is one of the few near term strategic enhancements that can be accomplished relatively fast and at minimal expense.

The concept has become more important in light of our current plan to retire the Titan II system. Also, the decommissioned Minuteman IIs will be added to our flight test assets, alleviating an existing shortage. The $5.0 million appropriated by Congress in FY 1982 will be used to plan for and initiate the deployment, and we have requested $15.8 million in FY 1983 to complete the effort.

We are deploying MK-12A reentry vehicles on 300 Minuteman III missiles. This effort will be completed in February 1983. We do not plan to expand this deployment, as the added cost is not justified by military needs, and the Department of Energy has advised that (deleted).

In comparing the performance characteristics of the Minuteman III and M-X missiles, we must emphasize that we believe the Minuteman III is and will continue to be a highly capable and valuable weapon system.

As the Soviet target base expands and the number of hard targets increases, the need increases for the more modern M-X system with its larger number of reentry vehicles and greater accuracy. This is specifically why we want to proceed with M-X production and interim deployment in Minuteman silos -- to take advantage of the new capabilities at the earliest possible time.

The engineering estimate for M-X CEP with the AIRS guidance system is (deleted). The current tactical CEP for Minuteman III is (deleted). As a result of the ongoing Guidance Improvement Program, we project that Minuteman III's CEP will be improved to about (d) by early 1984.

Given the above CEPs, an assessment of kill probabilities shows that, against a (deleted). M-X with the ABRV will provide a Single Shot Probability of Kill of (d). Minuteman III, with the MK-12A, will provide an SSPk of (d) against the same target, and with the improved CEP, an SSPk of (deleted).

GAO REPORT ON SURVIVABILITY OF SILO-BASED ICBM

QUESTION. The GAO report also noted that:

> "As the survivability of silo-based ICBMs decreases, the retargeting flexibility of surviving missiles becomes increasingly important. The Soviet capability to destroy ICBMs could eliminate U.S. ability to responsively strike certain Soviet targets, thereby providing an incentive for the Soviets to limit the damage the United States could inflict in a retaliatory strike. However, if the United States can ensure that important targets will be destroyed by whatever missiles survive (even if it is only a small part of the force), the incentive for the Soviets to attack could be lessened."

In this regard, what plans does the Air Force have to provide our MM III force with the Air Launched Control System (ALCS) Phase III, which would enhance our retargeting flexibility.

ANSWER. Airborne Launch Control System (ALCS) Phase III would provide airborne missile crews the added capabilities to retarget and receive alert status information directly from Minuteman missiles.

The program was terminated in October 1981 as a budgetary offset for part of the funding for the enhanced strategic modernization programs. We were unable to include all desired improvement programs within available funds while also modernizing our forces.

The military value of the planned capability was not in question and, in fact, we agree with the GAO's assessment of the desirability for retargeting ICBMs. Without ALCS Phase III, our airborne missile crews must communicate with the ground crews to have the missiles retargeted, since the ground system already possesses the retargeting capability.

We are reconsidering ALCS Phase III for Minuteman III as we plan for budget requests subsequent to FY 1983.

FUNDS TO KEEP MK-12A PRODUCTION LINE OPEN

QUESTION. In the FY82 Defense Appropriations Bill, the Conferees provided $22.3M to keep the MK-12A production line open and directed that whatever additional funding was necessary to maintain production should be reprogrammed. In light of the decision to use the ABRV warhead for the MX, what is being done with the $22.3M provided by the Congress?

ANSWER. The $22.3 million has not been obligated pending resolution of the issue concerning FY 1982 funds which were appropriated but not authorized. Our recommendation remains that the MK12A production line should not be continued beyond the current buy for 300 Minuteman IIIs.

Since the ABRV has been selected to be the M-X reentry vehicle, there is no longer any reason to maintain the MK-12A mass production line in a ready state. This capability is not required to produce reentry vehicles for the first five M-X developmental flight tests.

Concerning the Minuteman application, we do not plan to expand the deployment, as the added cost is not justified by military needs. Further, the Department of Energy has advised (deleted).

We are reviewing how the $22.3 million could best be applied to Air Force requirements, and will make a recommendation to the Congressional committees when the decision is made.

QUESTION: Why was the decision made to switch to the ABRV warhead for the M-X?

ANSWER: We chose the ABRV because it is a better reentry vehicle for the job than the Mk-12A. The ABRV has a new fuze which actually improves the RV effectiveness so that the probability of killing a hard target with a (d) ABRV is greater than that for a (d) Mk-12A. Furthermore, the ABRV fuze has a significant anti-jam capability such that the RV effectiveness under jamming is as good as it would be with an ordinary radar fuze without jamming. The ABRV warhead has been designed with modern safety features which preserve the option to use the system in mobile basing modes. Also, the warhead can be designed to provide a significantly higher yield than the Mk-12A's in the event Soviet target hardness should increase or M-X should fail to achieve its accuracy goal as a result, for example, of being based in a mobile mode. One of the most important features of the ABRV is that it provides these benefits while using approximately (deleted) dollars worth of oralloy less than Mk-12A uses with the same yield.

The Mk-12A could be given two of the ABRV features, namely, the fuze and the improved safety warhead. The Air Force estimates that the fuze would cost about $259M above the baseline Mk-12A program. The DoE is unable to provide a schedule for the insensitive high explosive (IHE) warhead until this warhead modification has been successfully tested this summer. Thus, selecting the Mk-12A with a new fuze and a modified warhead would add to the risk of missing the M-X IOC.

QUESTION: What additional costs are associated with this decision not to proceed with the Mk-12A as the baseline warhead for the M-X? What savings are made possible by the ABRV in terms of reduced use of strategic nuclear materials?

ANSWER: The ABRV development and procurement costs exceed those of the Mk-12A baseline program by $881M (FY 82 $). However, the Mk-12A would require a new fuze and an improved safety warhead if its performance is to match the ABRV's. This fuze would have added $259M to the Mk-12A development and procurement. Thus, the ABRV will cost DoD $622M more. Offsetting this expense the ABRV warhead will be built with a yield which saves about (d) worth of enriched uranium relative to the Mk-12A's requirement at this yield. This material would otherwise have to be manufactured to meet the needs of the future. When all the projected savings to the taxpayer are taken into account, the ABRV costs will exceed the Mk-12A's by less than $200M.

QUESTION: Will the full yield potential of the ABRV be exploited? Under what circumstances would the U.S. move to exploit the yield potentials of the ABRV. If the full yield potential was exploited, what would be the impact on the programs's cost and the projected savings in terms of strategic nuclear materials?

ANSWER: We believe that we will begin to measure M-X accuracy sometime in the 1984-85 timeframe and at that time, we shall reevaluate target hardness and decide on whether we need to go to the higher yield. The DoD has requested DoE to protect the option for the higher yield as long as possible. The DoE is currently assessing the cost and impact of protecting the high yield. Preliminary indications from DoE are that the dominant factor will be the need to produce additional oralloy. For 1055 warheads, about (d) additional metric tons of oralloy will be required to be produced starting in FY 1988. Approximate cost to produce is (d). It should be noted that an M-X force using the (d) Mk-12A would have required (deleted) additional metric tons to be produced vice the requirement for the (d) ABRV force.

QUESTION: To what extent will the single-shot hard-target kill capabilities of the M-X be improved by the potentially reduced CEPs projected for the ABRV?

ANSWER: When compared with the M-X performance using the Mk-12A RV without an improved, integrated fuze, the ABRV fuzing provides a significant improvement in single-shot kill probability from (deleted). If the Mk-12A were upgraded with a fuze comparable to that of the ABRV, the ABRV advantage in single-shot kill probability would be small when the yields are the same.

QUESTION: Will the initial flight testing of M-X be conducted with the Mk-12A, will this have an impact on our confidence in the M-X/ABRV system? How many tests will be conducted with the Mk-12A? Will additional tests be necessary once the ABRV is ready? What would be the cost implications of further testing?

ANSWER: The first five flight tests of the M-X missile will use the Mk-12A reentry vehicle. The ABRV will be used on the next 15 M-X missiles. Approximately 100 ABRV's will be tested. The use of Mk-12A on the first five flight tests should not impact our confidence in the ABRV in any way.

Once the ABRV is ready there will be no further need for Mk-12A's. Even if the early ABRV reentry performance were substandard, nothing would be gained by returning to the Mk-12A since the M-X launch and deployment sequence could be tested just as well with ABRV's. The cost of reopening the Mk-12A line would be high and it is not possible to imagine any reasonable circumstance which would make it worthwhile.

Army-Air Force Coordination

QUESTION: To what extent does the Army's BMD office coordinate its activities with the Air Force with respect to (deleted) M-X basing options?

ANSWER: Extensive coordination is maintained with the Air Staff, Air Force Systems Command, Ballistic Missile Office, and Strategic Air Command. A Memorandum of Agreement (MOA) between the BMD Program Manager and the Commander, US Air Force Ballistic Missile Office (BMO), signed in 1980, formalizes the relationship between Ballistic Missile Defense Organization (BMDO) and BMO, outlines policy and responsibilities, and provides for interchange of technical, operational, and program information. The M-X Program Office, within the BMO, is BMDO's greatest source of interaction with the Air Force to ensure the interoperability of the Baseline Terminal Defense System (BTDS) (previously LoAD) and M-X. Specific areas include BTDS M-X engineering development; basing; command, control, and communication; maintenance of deception; organizational and opertional concepts; physical security; and support facilities. Coordination channels have also been established with the Air Force Strategic Air Command (SAC) which will play a major role in the effective development of BTDS and ensure the ability of both offensive and defensive systems to operate with each other. Coordination with the Air Staff, principally through the Deputy Chief of Staff for Research and Development, occurs on a weekly basis.

There is an integrated effort underway between BMDO and the Air Force BMO to investigate options for long-term basing of M-X. The scope of this study includes the defense of fixed based ICBMs (deleted) (deleted) as well as defense of deceptively based M-X missiles. The goal of the study is to define and recommend the most cost-effective concepts available for the long term basing of the M-X. This permits the Army to proceed with the development of a flexible BMD system design capable of defending ICBMs in any basing mode under consideration. These programs are also being reviewed by the OSD Strategic Program Executive Committee.

Impact of M-X Basing Decision

QUESTION: What impact will the SASC decision concerning the M-X program, specifically the directive for a survivable basing decision by December 1982, have on the Army's BMD program in terms of money and development schedule?

ANSWER: A basing decision by December 1982 would enable the Army to concentrate on developing a Baseline Terminal Defense System (previously LoAD) design optimized for a specific application rather than a design suitable for a wide spectrum of applications. This would increase confidence in the ability to reach initial operational capability (IOC) by (deleted) because maintaining a multi-mission capability requires deferral of some design decisions and results in a high degree of concurrency in the system test and production phases. The Baseline Terminal Defense System development program is highly compressed and an earlier decision would reduce schedule risks.

M-X and ABM Treaty

Senator Garn: Are there any MX basing options currently under review which incorporate some BMD system which would not necessitate a fundamental alteration of the ABM Treaty (i.e. other than the location of the system)?

Answer: Yes, we are studying the use of existing Spartan interceptors in the manner you describe.

BMD Schedule Acceleration

QUESTION: Some of my colleagues who oppose the President's interim basing decision, prefer the deceptive/defended basing option to provide for long-term survivability. These same colleagues desire the earliest possible IOC date, (deleted).

ANSWER: The BMD system can reach an IOC of (deleted). This was done successfully in SAFEGUARD.

Soviet ICBM Technology Against Terminal Defense

QUESTION: Have our intelligence agencies detected any developments in Soviet ICBM technology (including but not exclusively involving MARVs) which could pose serious problems for a terminal defense system to protect the MX in the future, be it deployed in fixed or deceptive silos?

ANSWER: (Deleted).

Finally, the large throw weight capacity of Soviet boosters allows them a significant degree of flexibility to incorporate nuclear hardening measures and penetration aids into their operational payloads.

The performance of the low altitude terminal BMD system currently under development (SENTRY) would (deleted) the SENTRY system is being designed with an extensive capability to counter penetration aids, either through the basic design or through provisions for modifications if needed.

System Design Problems

QUESTION: In the Army's testimony, it is noted that the "elimination of the MPS basing scheme relieved the pressure of several technical design drivers such as an extreme nuclear environment, preservation of location uncertainty, design of the defense unit platform, and technology to "breakout" through the MX shelter roof." How would these pressures return if the US adopted a (deleted) MX basing mode?

ANSWER: As indicated below, the design problems associated with (deleted) basing modes would not be as severe as those associated with the earlier MPS basing.

(Deleted).

BMD Funding Requirements

QUESTION: Would the funding requirements for LoADs be reduced if a decision were made prior to July 1983, for example in December 1982, concerning the use of either fixed or deceptively based silos?

ANSWER: The Baseline Terminal Defense (previously LoAD) System funding requirements would not be reduced by an earlier basing decision. In December 1981, increased program schedule risk was imposed when the LoAD program was restructured to provide a system design with sufficient flexibility to accommodate both fixed and deceptive M-X basing options. The schedule risk increased significantly since funding was not increased to handle the additional requirements for pursuing a "common" system with multiple applications. A December 1982 decision would eliminate requirements for these multiple deployment options so that programmed resources could be concentrated on the baseline design. This will correspondingly reduce program schedule risk incurred in December 1981.

IMPACT OF ACCELERATION OF M-X BASING DECISION ON AF REVIEW OF BASING OPTIONS

QUESTION : What impact would an acceleration of the M-X basing decision have on the AF review of basing options, such as launch-to-orbit on warning, that are not included in the three principal options outlined by the President last October? As I understand it, these options are currently under review, with some preliminary decision being made this summer.

ANSWER : The President's long-term M-X basing program includes three principal options: 1) Deep Underground Basing; 2) Continuous Patrol Aircraft; and 3) Ballistic Missile Defense. The Air Force is vigorously pursuing R&D efforts on these options that will utlimately lead to a July 1983 recommendation on the most survivable basing mode for M-X.

As part of the long-term basing program, the Administration has not precluded the Air Force from studying additional basing options.

Although the orbital basing concept fits into this category and we are examining it, the major R&D emphasis continues to focus on the three principal options.

Finally, we are planning to conduct a preliminary assessment of all basing concepts late this summer. The objective of this assessment will be to narrow the field to only those concepts showing the most promise. We will then concentrate our efforts in these areas when preparing a survivable basing recommendation for the President's consideration. Compressing the time available for reviewing the basing concepts would reduce the scope and comprehensiveness of our analyses.

Prospect of a Common Missile

QUESTION: If the IOC for the MX were delayed until 1988-89, would it make economical or military sense to drop the MX program in favor of a common missile approach, in concert with the Trident II program?

ANSWER: No, our studies have shown that the common missile approach for ICBMs and SLBMs makes little economical or military sense. In the latter case, the dimensional constraint imposed by the SLBM tube size forces significant performance penalties on the ICBM version. At full load, it lacks intercontinental range. We would extend that range by removing several reentry vehicles per booster, but the cost of the additional boosters needed to deliver those downloaded reentry vehicles erodes the apparent economic benefit of the common missile. Given the current maturity of the M-X missile program - the first flight test is about nine months away - no new missile could be ready in the same timeframe. The M-X missile program maturity also makes it improbable that any new missile could be acquired for less or even equal future costs in any timeframe, including the relaxed IOC cited in your question.

Finally, there is much to be said for the military value of diversity in our strategic forces as a hedge against unexpected technical problems, simultaneous technological obsolescence, and effective enemy counters. The value of such diversity is difficult to quantify or price, but it is real and its contribution is to the maintenance of deterrence that is continuous over time, avoiding serious time-gaps of reduced capability.

Common Missile and Mobile Basing

QUESTION: Would a common missile provide us with more flexibility in forms of its adaptability to truly mobile basing scheme?

ANSWER: It would, of course, depend on the basing scheme being considered. The Trident II missile will weigh about two-thirds as much as M-X, and our work to date has not brought out any particular advantage to a missile that size. It is, for example, still far too heavy for a road mobile system even if such a system were considered viable.

QUESTIONS SUBMITTED BY SENATOR ANDREWS

Influence of the Silo-Based Force

QUESTION: In a statement prepared 8 February 1982 called M-X Development and Deployment Plan there is a passage and I quote, "The initial deployment of 40 M-X in existing silos will be sufficient to hold the most threatening Soviet silo sanctuaries at risk; however, it is not sufficient to pose the destabilizing threat of a disarming first strike". If these weapons are not protected from a presumed first strike, how can we threaten the Soviet's silos? Where is there any indication that the Soviet's will, and I again quote from the text, "redirect their long-term emphasis from further offensive improvements toward survivable basing of their forces and arms reduction negotiations"?

--there is a standard accepted notion that the Soviet Union follows the old football cliche, a good defense is a better offense. If the Soviets have a convincing threat of destruction through their first-strike launch, there is little belief that they will move toward a defensive posture.

ANSWER: The answers to your questions derive from our premise that we are dealing with a rational enemy. He, therefore, knows that the M-X missile will threaten, or hold at risk, the very Soviet silo-based ICBMs that now threaten Minuteman. He knows this is true whether or not the M-X is survivably based, because it is a function of M-X capability and Soviet silo vulnerability. Again, whether M-X is vulnerable or not, we simply do not think it would be rational for the Soviets to continue to proliferate weapon systems made vulnerable by M-X. Instead, and without any positive indication, we think they will be more likely to improve their own survivability, thus increasing stability and avoiding an escalation in the arms race.

QUESTION: Dr. Wade, in your opening statement this morning you remarked, "We wished, in short, to break the cycle of action and reaction that has become known as the arms race". Don't you think that building a non-defendable MX Missile will surely lead to the Soviet Union building a larger and more potent warhead, capable of "knocking out" our missiles before they can be launched?

ANSWER: The answer is that no one weapon system can break the cycle of action and reaction. But we are committed to the proposition that the President's Strategic Modernization Program, with its heavy emphasis on improved survivability and endurance of all our strategic forces and with its upgrades in our strategic defense and C^3I, offers the best basis for hope that we can end the arms race. We believe our commitment, itself, to this Program will be highly instrumental in initiating serious arms control/reduction negotiations. And we believe and hope that Soviet motivation to complete successful START talks will increase as we implement the President's program.

QUESTIONS SUBMITTED BY SENATOR D'AMATO

SASC DELETION OF FUNDS

QUESTION : How will the action of the Senate Armed Services Committee deleting funds for the first 9 production M-X missiles affect the M-X production plan?

ANSWER : Our first estimate is that delay of production until FY 1984 will cause a minimum one year slip in the M-X IOC, and will add approximately $250-$300 million to the cost of the program.

Also, the M-X government contractor team is a complex and highly integrated group. There are over 20,000 people working today on the M-X system, all marching down an orderly path to develop M-X and then move into the production phase.

Consequently, it is hard to calculate the full impact of delaying a major program milestone for a year. Undoubtedly, the rephasing necessary will cause some effects in the areas of employment and cost that are difficult to forsee at this time.

IMPACT OF DELETION OF FUNDS ON THE PRIME CONRACTOR

Question: What impact will the deletion have on the prime contractor?

Answer: Notwithstanding the fact that production contracts have not been initiated, there will be considerable indirect impact. Most significant will be deferral of investment to support production, delays in production planning, and shifts to a conservative approach in efforts leading to manning, advanced planning, and subcontractor commitment.

Soviet Response

QUESTION: You state that the Administration's objective is to stabilize the arms race by creating a strategic deterrent which would be so costly to overwhelm and which will present such a threat to Soviet hardened installations that the Soviet Union will decide it is more cost effective to divert its defense resources into building a mobile, survivable land-based strategic force. Assuming success in our plan to develop such a survivable system, which would include a combination of the M-X, the B-1, the Advanced Technology (Stealth) Bomber, the Trident II, the cruise missile, and the Command, Control, Communications, and Intelligence system upgrade, how would the Administration view continued Soviet modernization and deployment of heavy ICBM's in fixed silos?

ANSWER: Because the suggested Soviet response is a proliferation of the very type of weapon system put at risk by our M-X and Trident II, we would regard such a response as unlikely.

FUTURE SOVIET INVESTMENT IMPLICATIONS

QUESTION: If the Soviet Union chose to continue its investment in strategic offensive power, would that create a more stable or a less stable strategic environment?

ANSWER: Soviet leaders view strategic arms policy in the context of a persistent, long-term struggle for expansion of Soviet influence and the Communist system. They recognize that military power is necessary to sustain the Communist regime and expand its influence in the world. They prefer possession of superior capabilities to fight and win a nuclear war against the United States, and are continuing to improve their chances of prevailing in such a conflict. The Soviets believe that the better prepared they are to fight in various contingencies, the more likely it is that potential enemies will be hesitant to counter Soviet political and military actions.

Strategic nuclear forces support Soviet foreign policy aims by being capable of projecting military strength sufficient to offset the strategic forces of potential opponents. Soviet leaders appreciate the political importance of world perceptions of military power and have long acknowledged the contribution of their current strategic position as supporting the conduct of an aggressive foreign policy and the expansion of Soviet power and influence abroad.

Since the Soviets' ultimate objective is global political and military domination, it is most likely that they will continue to increase their investment in strategic offensive forces. And, since the Soviets translate nuclear power into political action, the larger the Soviet margin of superiority in offensive arms, the more destabilizing it becomes in the US view. The Soviets, however, view clear-cut superiority in their favor to be stabilizing since they will be able to dictate policy to the rest of the world and will have achieved a major goal in the "ultimate and inevitable" objective of world Communism.

IMPACT OF THE DELETION OF FUNDS ON SUBCONTRACTORS

QUESTION: What impact do you expect the deletion to have on the subcontractors and on employment in the program?

ANSWER: As stated in my response to the previous question, the most significant impact will be the deferring of investment to support production, production planning and, in general, commitment to the M-X program.

As for the effects on employment, major M-X subcontractors currently employ approximately 9000 people. While we do not know precisely how this work force would be affected, it is reasonable to assume that the rephasing of a major program milestone will, indeed, have adverse effects.

SOVIET MILITARY R&D SPENDING

QUESTION: Secretary DeLauer recently testified that the Soviet Union has invested approximately $440 billion more in military research and development and procurement over the last decade than we have. He further testified that $120 billion of that was devoted to research and development. Can you tell us roughly what proportion of that investment edge was devoted to strategic systems?

ANSWER: Analysis of the dollar cost estimates of the Soviet and US defense activities indicates that approximately 40-45 percent of the procurement difference between the two countries is attributable to the strategic forces. Due to data insufficiences, we cannot calculate separate research and development costs in a format permitting the $120 billion to be allocated to specific missions however.

SOVIET ICBM PRODUCTION

QUESTION: Is the Soviet Union presently producing ICBM's?

ANSWER: (Deleted).

ICBM Production Line

QUESTION: . Does the United States have a presently operational ICBM production line?

ANSWER: No sir, we do not. We believe that the existence of the M-X production line will provide us not only a needed product but an element of deterrence against any Soviet plans for a "breakout" in increased missile production designed to give them a sudden, perhaps irretrievable strategic advantage.

SOVIET SLBM PRODUCTION

QUESTION: Is the Soviet Union presently producing SLBM's?

ANSWER: The Soviet Union is producing several SLBMs. (Deleted). This figure has been fairly constant for the past 3 years.

SLBM Production Line

QUESTION: Does the United States have an active SLBM production line?

ANSWER: Yes, sir.

SOVIET BOMBER PRODUCTION

QUESTION: Is the Soviet Union presently producing manned bombers?

ANSWER: The Soviet Union presently is series producing one manned bomber -- BACKFIRE. Additionally, a long range strategic bomber prototype (deleted) is in (deleted) development.

QUESTION: Does the United States have an active bomber production line?

ANSWER: No, sir.

Active Production Base and START

QUESTION: In your view, what effect does the general presence of an active production base in the Soviet Union and the absence of a similar active production base in the United States have upon our ability to negotiate arms control agreements with the Soviet Union?

ANSWER: The effect is that the positions you accurately describe provide absolutely no incentive for the Soviets to engage in serious negotiations of arms control or reduction agreements. So long as we provide him no incentive to negotiate, we cannot expect meaningful concessions from him.

Effect of M-X Delay on START

QUESTION: What impact do you believe extended delay and difficulty with the M-X program would have on the U.S. negotiating posture in any future Strategic Arms Reduction Talks (START) with the Soviet Union?

ANSWER: The impact on our START negotiating posture of extended delay and difficulty with the M-X program would be negative. If, in any debate or negotiation, you see your opponent doing exactly what you want him to do without costing you anything, your interest in accommodation lessens significantly.

Soviet Perception of Delaying M-X

QUESTION: In your opinion, what are we risking if we send the Soviet Union a signal that we are not serious about safeguarding our ICBM's by completing the M-X program on schedule?

ANSWER: We believe that any voluntary delay of the M-X program would have a negative impact on the real prospects for meaningful START negotiations.

Effect of a Nuclear Freeze

QUESTION: If the so-called "nuclear freeze" advocates carry the day, and the Hatfield-Kennedy resolution passes, what impact do you believe that will have on our START negotiating position and on our Theater Nuclear Forces (TNF) negotiating position?

ANSWER: We are convinced that a nuclear freeze at this time would virtually eliminate all incentive for the Soviets to negotiate seriously and in good faith in either the START or the current, on-going Intermediate Range Nuclear Forces (INF) negotiations toward deep and truly meaningful reductions. Our own negotiating position would be essentially emasculated.

Question: In the JCS publication, "United States Military Posture for Fiscal Year 1983", on pages 24 and 25, there appear charts titled "Strategic Forces Post Exchange Residuals", one chart based on day to day alert, and the other chart based on generated alert. These charts are based on the United States riding out a Soviet first strike before retaliating. These charts only reflect 1987 and 1991 conditions. If similar charts were drawn for 1982, how would we fare against the present Soviet threat? (Unclassified answer please)

Answer: This question cannot be adequately addressed at an unclassified level. The answer is provided at the TOP SECRET level on pages 26 and 27 of the classified version of the OJCS publication referenced.

M-X PERMANENT BASING MODE

QUESTION: Lieutenant General Burke stated that his personal preference for an M-X permanent basing mode was some form of defended basing. Does the Air Force feel the Ballistic Missile Defense (BMD) Program should remain under Army control?

ANSWER: General Burke stated that of the three permanent basing modes under consideration -- airmobile patrol, deep basing and defended/deceptive -- he believed the last held most promise. The Air Force has a close and effective working relationship with the Army to relate BMD and M-X activity and would not propose a change in the management of BMD.

ABILITY TO COORDINATE EFFORTS IN THE M-X PROGRAM WITH ARMY

QUESTION: Is the Air Force satisfied with its ability to coordinate its efforts in the M-X program with the Army BMD program?

ANSWER: Yes. We have effective coordination at both the technical and policy levels between the Air Force M-X program and the Army BMD program.

BMD Progress

QUESTION: Is the Army making enough progress fast enough with BMD to be able to deploy a system as part of a Defended Deceptive Basing (DDB) concept for the M-X without delaying the system IOC?

ANSWER: Yes, the Army is pressing ahead to develop a BMD system design capable of defending ICBMs in the fixed or deceptive basing modes currently under consideration. The BMD system can reach an IOC of (deleted).

The ability of the Army to achieve the (d) IOC is strongly dependent upon funding. The program required to do this compresses a (deleted) and involves a significant amount of concurrency in development and production. Without the full funding in FY 83 to support the accelerated schedule, the (d) IOC would slip.

Blast Hardening

QUESTION: Can you address, again in general terms, blast hardening as it relates to BMD radars?

ANSWER: Blast hardening of the BMD radars (deleted).

Standing Consultative Commission

QUESTION: When does the Standing Consultative Committee meet, and when does the Administration expect we might have to address the BMD issue before that Committee, assuming the DDB MX option is chosen as the permanent basing mode?

ANSWER: The Standing Consultative Commission (SCC) does not meet per a fixed schedule, but holds meetings twice a year - usually in March and December. Assuming that the SCC is the forum we choose for discussions of the ABM Treaty review, we would not propose changes unless we believe that such changes would contribute to stability. The Treaty can be amended at anytime, not just every five years, and the SCC can be called into session by either Party whenever deemed necessary. Regardless of which basing mode is chosen for the MX, the BMD requirement must be thoroughly examined to determine if a change to the ABM Treaty is necessary.

BMD and Arms Control

QUESTION: Would you explain your view of the impact of BMD on the arms control process?

ANSWER: President Reagan's strategic arms reduction proposal calls for significant reductions in the offensive destructive potential of the strategic superpowers and includes measures to enhance the stability of these nuclear forces. In a like manner, defensive systems - by protecting the offensive nuclear arsenals which deter aggression - are a stabilizing force. These systems cannot be the subject of arms control in isolation. Any arms control negotiations involving BMD - and the ABM Treaty is no exception - requires effective control of offensive systems and, hence, BMD controls cannot be negotiated alone, but must be dealt with as a part of the total strategic arms control "package."

System Effectiveness

QUESTION: Can you give us any insight into the effectiveness of a LoAD type BMD system as a function of the number of systems deployed? (Unclassified answer, please).

ANSWER: The overall effectiveness of any BMD system is highly dependent on its mission and the basing configuration in which it is deployed. In terms of successfully engaging reentry vehicles (RVs), very high effectiveness figures are achievable for endoatmospheric BMD concepts now under consideration for defense of M-X and Minuteman.

The numbers of radars and interceptors for the Baseline Terminal Defense System (previously LoAD) are chosen to provide an acceptable effectiveness against the projected threat. The number of ICBM survivors which can be provided with reduced inventory is a function of many things, an important one being the basing mode. For example, the effectiveness per unit of defense is much better for deceptive ICBM deployments because of the multiplying leverage provided by defense and deception. In general, however, for a given basing mode, the price in terms of Soviet RVs charged to destroy our ICBMs increases more or less linearly with defense inventory.

MX and Civil Defense

Question: If we pursue the MX, it will likely be based in the Midwestern part of the country. What precautions will be taken for Civil Defense to insure certain survivability of the populace if a nuclear attack is made on these MX missiles? The civil defense portion of the budget is often criticized as being concerned more with political/economic concerns than survival.

Answer: Administration of the U.S. civil defense program is a responsibility of the Federal Emergency Management Agency (FEMA). The Department of Defense and the National Security Council, however, have policy oversight responsibility for the program in order to insure that FEMA's planning for nuclear attack preparedness is appropriately integrated with other strategic nuclear attack planning within the Department of Defense.

Since FY 1981, FEMA has given priority attention to development of civil defense measures for risk areas surrounding U.S. strategic force installations. So far, this effort has focused on development of plans and procedures for relocating the local civilian population into safer host areas. These plans could be executed at the President's discretion during time of intense international crisis. FEMA has advised us that by the end of FY 1982, initial plans for these areas--which include our strategic missile fields--will be 75% complete. If the Administration's proposed civil defense initiatives for FY 1983 and beyond are funded as requested, a fully developed comprehensive population protection capability will be afforded these areas and others by end FY 1989. While no civil defense program can insure certain survivability of the population, the proposed FEMA program will afford the American people a far better chance of surviving a nuclear attack than would otherwise be available.

QUESTIONS SUBMITTED BY SENATOR STENNIS

Effect of Deferment of M-X Missile Procurement

QUESTION: The Armed Services Subcommittee on Strategic and Theater Nuclear Forces has recommended deferment of the planned buy of nine M-X missiles in Fiscal Year 1983. What would this do to the President's plan for enhancement of strategic capability?

ANSWER: We believe such a deferment would have a seriously negative effect on the President's plan for modernization of our strategic forces. There is a very real need now for the kind of capability provided by M-X, yet 1986 is the earliest we are able to get it into the operational inventory. This deferment would voluntarily, in a unilateral manner, delay the availability of that capability by at least a year. Quite aside from the unnecessary delay in achieving a needed military capability, we are concerned about the international perceptions of such a move by this nation--others may very well read it as a weakening of our resolve to restore our strength. Such a conclusion by the Soviets would be very deleterious to our prospects for meaningful START talks.

Changing the President's Program

QUESTION: Some advocates believe that deferment of the planned 1983 procurement and redirection to deployment of the missile in a survivable mode at the earliest possible date will strengthen the President's program. Could this be true?

ANSWER: We believe that any voluntary action taken to delay the introduction of the powerful M-X missile into the operational inventory weakens the President's program.

Effect of Deferment

QUESTION: Is it your opinion that the deferment of the 1983 buy will put the program behind schedule and provide for increased costs?

ANSWER: It is clear that a one year delay would result and there would be a small increase in costs.

REDUCE THE VULNERABILITY OF LAND-BASED MISSILES

QUESTION : General Burke, your statement mentions one of the elements of the President's program for modernization of strategic forces as being to reduce the vulnerability of land-based missiles. Would you comment on just how the vulnerability of our missiles will be lessened by placing the M-X in unhardened Minuteman silos. Doesn't this really just give the Soviet Union the option of destroying more capable U.S. missiles (the M-X) with the same amount of firepower targeted against the Minuteman missiles?

ANSWER : Placing M-X in Minuteman silos will not redress the survivability problem. Placing M-X in these silos is an interim, but nonetheless critical step in the President's step-by-step ICBM modernization program. M-X in silos preserves the continuity and pace of the M-X missile program, provides badly needed strategic offensive capability and essential leverage for our START negotiations. Meanwhile, we are actively pursuing an acceptable and effective alternative basing mode to provide for the long-term survivability of M-X.

Unique Characteristics of ICBMs

QUESTION: Mr. Wade, your statement addresses "the vital attributes that only land-based missiles can offer". Would you expand on these attributes?

ANSWER: The unique characteristics of land-based ICBMs include safe, dependable C^3, low operation and maintenance costs, alert rates approaching 100%, a force survivability (vice individual missile or submarine survivability) that is independent of warning, quickest reacting (from launch order to target) and most accurate of the Triad forces, sovereign basing, and a vulnerability mode different from bombers and SLBMs.

QUESTION: Mr. Wade, would you comment on and then provide the record the total estimated cost for each of the three alternative long-term basing modes under consideration for the M-X?

ANSWER: Continuous Patrol Aircraft (CPA) is the name of the concept in which a new type of airplane using very light weight construction using composites and economical propulsion systems will stay aloft for extended missions, ready to air-launch an M-X missile. We are currently analyzing the survivability of an M-X force deployed in this manner before doing any further study. If we determine that the CPA concept offers sufficient survivability, we intend to return to Congress to explain that outcome and to seek authority to spend a portion of the funds already appropriated for that purpose in FY 1982. That study will be completed this summer, leaving only a few months of FY 1982 in which to pursue further study. It is doubtful, therefore, that even a significant portion of the $10 million appropriated in FY 1982 could be used. We are requesting $74 million in FY 1983 to continue those studies.

The Deep Basing concept calls for deployment of M-X missiles thousands of feet below the ground level so that they will survive even a direct hit. The best method for post-attack egress is being carefully examined, and there is some basis for hope that a quick reaction egress capability can be developed. Even without that capability, however, Deep Basing offers a survivability and endurance far beyond that of any other concept we have examined. It would provide the basis for our resisting enemy threats and demands in the post-attack period. We are spending $28.5 million in FY 1982 studying this concept, and we are requesting $127 million in FY 1983 to continue the effort.

Under the Ballistic Missile Defense (BMD) option, we are looking at various ways to defend M-X. We are looking at all possible combinations of fixed and deceptive basing of M-X and each of the two BMD components, radars and interceptors. The Army and Air Force are working separately and closely together under our close supervision in USDR&E. The interface has been working well and a great deal of progress has been made. We are spending $25 million on this effort in the M-X program in FY 1982, and we are seeking $109 million in FY 1983 to continue the work.

Two overall comments must be made. The first is that we have concluded that a mix of two or more basing modes is probably required to achieve the results we want. The second is that these dollar amounts for R&D studies have nothing to do with the acquisition costs of these systems--until they are designed and not just conceptualized there can be no total estimated cost for acquisition that we would have reasonable confidence in. We expect to have such an estimate ready at the time we make a recommendation to the Congress by 1 July 1983.

Ultimate Disposition of M-X Missiles

QUESTION: In the event the short-term basing mode of placing the M-X in Minuteman silos is deployed, is it the plan to then move these missiles to a more survivable mode once this mode is selected?

ANSWER: Yes, it is.

CONTINUOUS PATROL AIRCRAFT BASING DIFFERS FROM OTHER AIR MOBILE VARIANTS

QUESTION: General Burke, would you comment on how the continuous patrol aircraft basing differs from other air mobile variants that have been studied and rejected in the past?

ANSWER: The Continuous Patrol Aircraft concept differs from previous air mobile concepts in a very important way. CPA has a large number of aircraft airborne at all times. This eliminates a major drawback that has always plagued the airmobile idea, dependence on strategic and tactical warning. The development of composite and propulsion technology may allow development of an aircraft which can remain airborne for extended periods, survive and is cost effective.

PRESENT DEEP-UNDERGROUND BASING MODE DIFFER FROM THE PROPOSALS OF THE PAST

QUESTION: There have similarly been various other underground variants studied and rejected in the past. How does the present deep-underground basing mode under consideration differ from the proposals of the past?

ANSWER: The Deep Basing concepts being studied are generic in that they are all based upon gaining survivability by placing ICBM's deep below the earth's surface. There are not yet any specific concepts defined which could be compared to previous studies.

Desirable Characteristics of ICBMs

QUESTION: The desirable operating characteristics of a land-based ICBM force are prompt counterforce capability, secure and reliable C^3, and enduring survivability. Do you believe these characteristics are available in both the continuous patrol aircraft and the deep-underground basing options?

ANSWER: Neither CPA nor Deep Basing offers all three of the characteristics you cite, and your questions serves to highlight one of our conclusions to date. It is that we may need a mix of basing modes for M-X in order to achieve all that we want. It is too early to be firm in our judgement on this matter.

SUPPLEMENTAL REQUEST FOR DEVELOPMENT OF THE ABRV

QUESTION: The fiscal year 1982 supplemental request includes funds for development of an advanced ballistic reentry vehicle (ABRV). Why is this? Last year we were told that the baseline reentry vehicle of the M-X was the Mark 12-A. Is it true that bringing the ABRV to operational capability will cost an additional $1 billion?

ANSWER: After an extensive review, the Department of Defense decided to change the M-X baseline reentry vehicle to the ABRV. The reasons for making the change included:

1. ABRV is an advanced technology reentry vehicle with improved accuracy, enhanced all weather capability and increased hardness against nuclear effects.
2. ABRV has growth potential for a higher yield warhead which will provide an important hedge against future Soviet initiatives.
3. The ABRV warhead will incorporate modern safety features which will reduce even further the already very small chance of a nuclear accident. Some modification of the W 78 (MK 12A warhead) would have been required to incorporate these features. Additional underground nuclear testing would have been required to establish the feasibility of this modification.

4. The ABRV provides an important element of diversity and advanced capability in the MIRVed ICBM force.

5. And finally, the ABRV can be developed and procured in time to meet a late 1986 M-X IOC with acceptable schedule risks.

The ABRV cost increment over the MK 12A baseline is approximately $881 million in FY 82 constant dollars.

It should also be noted that offsetting cost advantages accrue to the government as a result of the decision to proceed with ABRV. For one thing, the ABRV warhead requires less scarce Special Nuclear Material (SNM) than the MK 12A warhead would have. Savings that result from the more efficient use of SNM are estimated to be approximately $500 million ($ FY 1982).

Additionally, if the MK 12A would have been retained, an improved arming and fuzing system would have been added increasing the cost by approximately $259 million ($ FY 1982). These savings and added expenditures tend to offset the cost of ABRV.

ADDITIONAL COST IN TERMS OF CAPABILITY

QUESTION : Just what will the additional cost give us in terms of capability above what is already available with the MK 12A?

ANSWER : After an extensive review, the Department of Defense decided to change the M-X baseline reentry vehicle to the ABRV. The reasons for making the change included:

1. ABRV is an advanced technology reentry vehicle with improved accuracy, enhanced all weather capability and increased hardness against nuclear effects.

2. ABRV has growth potential for a higher yield warhead which will provide an important hedge against future Soviet initiatives.

3. The ABRV warhead will incorporate modern safety features which will reduce even further the already very small chance of a nuclear accident. Some modification of the W 78 (MK 12A warhead) would have been required to incorporate these features. Additional underground nuclear testing would have been required to establish the feasibility of this modification.

4. The ABRV provides an important element of diversity and advanced capability in the MIRVed ICBM force.

5. And finally, the ABRV can be developed and procured in time to meet a late 1986 M-X IOC with acceptable schedule risks.

POSSIBILITY OF DEVELOPING ABRV BY IOC DATE FOR M-X MISSILE

QUESTION: Is it really possible to develop the ABRV by the planned Introduction to operational capability date (IOC) for the M-X missile?

ANSWER: Yes, we are confident that the ABRV can be developed in time to meet the late 1986 M-X IOC.

Earlier last year, we judged that ABRV work could not be completed in time; however, circumstances have since changed. First, redirection of the ICBM program in response to the President's October decision caused the M-X IOC to move from July 1986 to later in the year.

Secondly, the Ballistic Missile Office, in reassessing the entire ABRV effort, concluded that an arming and fuzing system being developed by the Sandia Corporation could be made available in time to meet a late 1986 IOC. These factors combined to produce the change, and we are confident that a mature, tested system will result from the development program.

QUALIFICATION OF ABRV DEVELOPMENT FUNDS FOR INCLUSION IN SUPPLEMENTAL BUDGET REQUEST

QUESTION: Normally supplemental budget requests are only for fact-of-life changes or emergency requirements that cannot await consideration of the annual bill. Do you feel that the ABRV development funds qualify for inclusion in the supplemental budget request.

ANSWER: Yes. It was essential to begin work at once to meet the late 1986 M-X IOC. Delaying work until FY 1983 would most certainly have resulted in a gap between the planned IOC and ABRV availability. For example, a delay in starting work until November of 1982 would have resulted in an IOC slip of approximately one year. Consequently, we did not judge waiting to be an acceptable course of action.

DELAY OF THE ABRV

QUESTION : Isn't it possible that, in the event the ABRV is delayed, it may be necessary to install a mixed system with the Mark 12A in order to protect the planned IOC date? If this happens, it would appear that a costly retrofit would be required in the future. If this is true, how much in additional funds would we be speaking of?

ANSWER : A mixed force of MK 12A and ABRV reentry vehicles is not a viable option because the Department of Energy has been instructedby the Congress to develop a single warhead for the M-X. A mixed force would require development of two warheads, the W78 for the MK 12 and the W87 for the ABRV.

If problems are encountered during development of the ABRV, then schedule risks will certainly increase. We are confident, however, that the ABRV can be developed and procured in time to meet a late 1986 M-X IOC.

PROBLEMS WITH LIQUID PROPELLANT TANK FOR STAGE IV OF M-X MISSILE PROPULSION SYSTEM

QUESTION: There have been some delays in the development and demonstration of the liquid propellant tank for stage IV of the M-X missile's propulsion system. Do you feel that these problems have now been overcome to assure that future milestones can be met and the IOC will not be adversely affected?

ANSWER: While it is correct that the baseline Stage IV liquid propellant tanks suffered fatigue cracks during testing, action has been taken to correct the situation. A new aluminum alloy is now being used to fabricate the tank and two 150 percent stress tests have been successfully completed with the new design. We will continue to monitor the matter closely; however, the problem is considered to be resolved. The problem had no effect on our schedule for achieving a late 1986 M-X IOC.

D-5 Alternative to M-X

QUESTION: The Fiscal Year 1983 President's budget contains funding to expedite development of the Trident II (D-5) missile. Isn't it possible that this missile could accommodate the mission profile of what is currently planned for the M-X?

ANSWER: No, the reduced range-payload characteristics of the D-5 make that nearly impossible. Furthermore, the D-5 availability, even on an accelerated basis, would come several years after availability of M-X.

Acceleration of Trident II IOC

QUESTION: Would additional funding for the Trident II development serve to increase development efforts and accommodate an earlier-than-planned introduction to operational capability (IOC)?

ANSWER: Yes, it would, although we have not completed our assessment of the possible impacts on technical performance of such an acceleration.

Cost of Common Missile

QUESTION: Would a so-called "common" missile provide for substantial savings from the funds currently planned in the five-year defense program? What would be the order of magnitude we are speaking of?

ANSWER: According to the results of the extensive study done by OSD in 1978, we should expect no savings or even a cost increase for the reasonable case in which we require the common missile force to provide an RV capability equivalent to that of a Trident II/M-X force. The precise answer, however, is highly dependent on the degree of commonality selected.

Common Missile As Alternative to M-X Missile

QUESTION: Is it possible that the "common" missile could be available as an alternative missile for the M-X and be a viable candidate to be used with the Continuous Patrol Aircraft (CPA)?

ANSWER: It is not possible for a missile common to Trident II and the M-X mission to be available as an alternative to the M-X missile in the required 1986 timeframe. We believe a "common" missile is feasible, however, and it would be a viable candidate for use with CPA. However, there are no sufficient cost or technical advantages to offset the reduced capability as an ICBM or the weakness of reduced diversity within our strategic forces.

ACCEPTABLE LEVEL OF SURVIVING MEGATONNAGE

QUESTION: The planned Titan deactivation will result in the loss of a significant portion of total U.S. warhead megatonnage. Is it your opinion that an acceptable level of surviving megatonnage will continue to be available when the Titan is deactivated?

ANSWER: Yes, given the deployment of the additional 50 MM IIIs for MM IIs and the continued and planned deployment of ALCM, B1 and MX, an acceptable level of megatonnage will continue to be available when the Titan is deactivated.

SURVIVING U.S. LAND-BASED ICBM REENTRY VEHICLES

QUESTION: Surviving megatonnage is a key variable in SACs calculation of the required number of surviving U.S. land-based ICBM reentry vehicles needed for targeting purposes. Won't the deactivation of the Titan force affect adversely that calculation?

ANSWER: While it is true that Titan represents a significant portion of total ICBM megatonnage, megatonnage is not the most significant measure of the destructive potential of a strategic weapon system. Number of weapons and system accuracies are more meaningful factors.

The deactivation of Titan II will be carried out at an operationally acceptable rate in order to minimize the impact on the SIOP. The Air Force plans to partially compensate for the retirement of Titan II with the deployment, starting in 1983, of an additional 50 MM IIIs in place of MM IIs, a net increase of 100 weapons. In addition, the deployment of new strategic systems such as ALCM, B1 and MX will also help minimize the impact on the SIOP.

Earliest Long-Term IOC

QUESTION: As regards the three major options for permanent basing of the M-X missile, which of these options offer the earliest potential in terms of initial operational capability?

ANSWER: We believe that one of the suboptions of the Ballistic Missile Defense option would be available sooner than Deep Basing or Continuous Patrol Aircraft.

Lack of Prototyping

QUESTION: General Tate, what effect did the decision in the late 1970s to forego prototyping of the Ballistic Missile Defense (BMD) have on our current development efforts for this system?

ANSWER: The primary effect of the decision to forego prototyping has been the curtailment of systems-level R&D efforts and erosion of our lead in BMD technology. The Soviets have continuously maintained a complete system-level program (deleted) and in a deployed system. Unlike the US program, the Soviets (deleted) (deleted) opportunity was denied the US since the closure of the Safeguard site in 1976. There is no question that the Soviets have used these opportunities to severely diminish the overwhelming BMD technology advantage that the US had in 1972. They have taken advantage of technology transfer from the US, particularly in the area of solid state technology for the design of computers. Although the US still holds a lead in the computer area, the US lead in the areas of radar and interceptor technology has eroded during recent years. (Deleted).

Therefore, today the BMD problem is made more difficult because the US is playing catch-up in the systems area and it has been necessary to rebuild capability and momentum. It is important to continue the build-up already experienced with the Baseline Terminal Defense System (formerly LoAD) since FY 80. The government team and contractor structure have been in place for nearly two years and are ready to support BMD program redirection and the acceleration necessary to support the President's strategic modernization program.

Warhead Availability

QUESTION: Do you feel secure that the Department of Energy has the capability to produce the various warheads under consideration to meet the planned introduction to operational capability date?

ANSWER: Yes. The Department of Defense (DOD) and the Department of Energy (DOE) have established schedules for warhead development consistent with the Baseline Terminal Defense System (previously LoAD) development/deployment schedule. Quantities and schedules are reflected in the Nuclear Weapon Stockpile memorandum and the DOE Production and Planning Directive.

IOC Date

QUESTION: Has any consideration been given to slipping the planned IOC date, or does this continue to be the goal of the Administration?

ANSWER: The (deleted) IOC continues to be a goal of the Administration.

SUBCOMMITTEE RECESS

Thank you all very much for being here. This subcommittee is going to stand in recess until April 21, when we will receive testimony on global commitments.

Dr. **Wade**. Thank you very much, Mr. Chairman.

Senator **Rudman**. The subcommittee stands adjourned.

[Whereupon, at 10:20 a.m., Wednesday, March 31, the subcommittee was recessed, to reconvene Wednesday, April 21.]

DEPARTMENT OF DEFENSE APPROPRIATIONS FOR FISCAL YEAR 1983

WEDNESDAY, APRIL 21, 1982

U.S. SENATE,
SUBCOMMITTEE OF THE COMMITTEE ON APPROPRIATIONS,
Washington, D.C.

The subcommittee met at 9:23 a.m. in room 1224, Everett McKinley Dirksen Senate Office Building, Hon. Ted Stevens (chairman) presiding.

Present: Senators Stevens, Rudman, and Johnston.

DEPARTMENT OF DEFENSE

DEPUTY SECRETARY OF DEFENSE

STATEMENT OF HON. FRANK CARLUCCI III, DEPUTY SECRETARY OF DEFENSE

ACCOMPANIED BY:

GENERAL WILLIAM Y. SMITH, USA, DEPUTY COMMANDER IN CHIEF, U.S. EUROPEAN COMMAND

FRANCIS J. WEST, JR., ASSISTANT SECRETARY OF DEFENSE FOR INTERNATIONAL SECURITY AFFAIRS

U.S. GLOBAL MILITARY COMMITMENTS

U.S. MILITARY BURDEN ABROAD

Senator **STEVENS**. I will call the hearing to order.

We are here today to inquire into our Nation's global military commitments and what they mean to our economic interests and national security. We hope to determine exactly where we are today and how we got there and just where we seem to be heading in what appears to be an ever-growing military burden abroad. A part of this examination will include an assessment of allies' contributions to mutual defense and whether these efforts are fair and adequate.

Our own military capability to shoulder these burdens will be assessed. And we particularly must ask whether this Nation can afford to do all it says it should do overseas when our allies are reluctant to share the burden fully.

These are broad, sweeping issues but they are vital issues in the current budget climate confronting Congress. Even a casual newspaper reader is aware of growing demands to cut into the President's defense budget as one means of holding down Federal spending growth and reducing the projected deficit. This is simply another approach to the basic issue of affordability.

I told the President at the beginning of this session that I would support his programs, but that did not mean that every dollar in his budget would not be subject to careful review to make certain that it would be spent wisely and effectively.

GLOBAL COMMITMENTS

In the case of our global commitments—particularly the maintenance of large ground and air forces in Europe—this careful examination may indeed reveal that we are supporting far more than is necessary and that our allies are providing far less.

Not too many Americans are aware, I suspect, that the U.S. commitment to Europe and NATO is increasing, while our allies' contribution to their own defense is dwindling:

The U.S. share of NATO support increased from 47 to 49 percent last year and it will continue to increase under current practices.

The cost of U.S. forces stationed in Europe or directly committed to Europe will increase from $73 billion in fiscal year 1980 to $133.2 billion in fiscal year 1983 under the President's budget.

We are actually increasing U.S. forces in Europe, up 58,000 troops, from January 1975 through the current budget projections, while our NATO allies have reduced their forces in the same period of time by 56,000 troops.

We have many more figures to explore during our hearings, but the question of affordability is uppermost, and the budget pressures underscore that question.

DEFENSE SPENDING

We have an army of experts in and out of government who are ready and willing to tell us how to cut defense spending. These suggestions are usually hardware oriented—less planes, less tanks, less ships and missiles. We seem to argue more over the kinds of tools, when perhaps we should be debating the size of the tasks. The tasks are enormous; if we follow the President's 1983 budget they will cost more than $250 billion, with more than half of that amount committed to the defense of Europe.

We will be spending more than $23 billion to provide a nuclear umbrella for ourselves and our allies. A Navy budget of nearly $88 billion is to begin launching a 600-ship force to maintain superiority on oceans around the world.

RAPID DEPLOYMENT FORCE

We need some $4 billion this year to organize a rapid deployment force and we are investing more than $14 billion over 2 years in airlift/sealift assets to support it—all mainly for the defense of Southwest Asia. And we are spending to the tune of $20 billion to deploy or reinforce forces in the defense of Northeast Asia.

This is big money, and I haven't even mentioned the cost of defending our own hemisphere or how these defense costs will increase in the future simply to maintain existing commitments.

If we must cut the defense budget, do we cut planes, tanks and ships? Do we cut military readiness, or do we cut the size of the force? The answer we generally get back from the Pentagon is that modernization and readiness should be supported, even at the cost of the force size. A cut in force would clearly imply a reduction in our global military commitments, which bring us to the reason for our hearing today.

INTRODUCTION OF WITNESSES

Our lead-off witness will be the Deputy Secretary of Defense, Frank Carlucci, who is an old friend and I think is doing an extremely good job.

We will also hear from other witnesses who will not necessarily agree with the administration on these issues—Jeffrey Record, Leonard Sullivan and retired Admiral Thomas Davies.

Then, tomorrow, we will narrow the focus to our European and NATO commitments with testimony from several witnesses both in and out of Government.

The agenda for Friday, if necessary, has not been prepared.

Mr. Secretary, we do welcome you. Please introduce General Smith and Mr. West, so that they will be properly introduced in the record. You can handle your statement in any way you wish.

I am happy to have you here this morning.

INTRODUCTION OF ASSOCIATES

Mr. CARLUCCI. Thank you, Mr. Chairman.

On my left is Gen. William Y. Smith, who is Deputy Commander in Chief of the U.S. Forces in Europe; and on my right is Francis West, who is the Assistant Secretary of Defense for International Security Affairs.

Mr. Chairman, I have a prepared statement and with your permission I will just submit that for the record and make a few brief comments, so that we can get on to the areas of the committee's particular interest.

Senator STEVENS. I read your statement at home last night. I understand there are some substantial changes in it. Could you highlight the changes?

Mr. CARLUCCI. I would not call them substantial changes. There are some phraseological changes I made coming in this morning in the car. They deal principally with the way in which we characterized our foreign assistance program.

FOREIGN ASSISTANCE PROGRAM

I wanted to make it clear that our foreign assistance program is a balanced foreign policy tool to be used with nations who share our values for the purpose of enhancing their own security and extending our reach. The particular sentences on that subject seemed to me to lack the necessary clarity. That is the only major change. It is the second sentence in the second paragraph on page 5.

I just felt the wording could be a little bit more appropriate. Those are the only changes, Mr. Chairman.

I do welcome the opportunity to discuss our global commitments. I will just try to make two major points at the outset.

GLOBAL COMMITMENTS

Our global commitments have remained relatively constant over the last 30 years. What has changed is the geostrategic relationship among nations as a result of the increasing interdependency of the world's nations in the areas of natural resources, food, and technology.

The second major change has been the substantial growth in Soviet military capability, especially its ability to project power beyond its borders.

U.S. commitments, of course, are worldwide. Perhaps a better word than "commitments" in this sense would be our interests and responsibilities that we inherited fundamentally at the end of World War II. These include our commitment to NATO and longstanding economic and political ties to Europe. But let me emphasize that this is a defensive alliance; not a commitment per se to Europe, but a means of enhancing our own defense.

In Southwest Asia and Africa, an area you mentioned in your opening statement, this Nation has—perhaps a little belatedly—recognized that this is an area of vital interest to us because of the resources and strategic minerals that it supplies.

In East Asia and in the Pacific our responsibility to Japan and Korea date back to the fifties, and early sixties, and our economic interests in that area are growing extremely rapidly.

In the Western Hemisphere we need to maintain peaceful relations, stability, and democratic evolution, all of which are being challenged by foreign powers using the Cuban proxy.

As far as formal commitments, they range from collective security agreements such as the NATO and ANZUS agreements to bilateral defense agreements with such nations as Japan, the Philippines and South Korea.

SOVIET MILITARY BUILDUP

Our overall commitment is to the peace and stability of the world so that we may be able to pursue freely our national interests. Unfortunately, the Soviet Union does not seem to share these goals and they are intent on building up a very large military establishment. Perhaps most significant is the changing character of that establishment, one that is far more than is required for the defense of the Soviet homeland, one that is evolving toward very substantial power projection capability, a blue-water navy, airlift capability, one that can now avail itself of a number of outposts around the world—names that are familiar to Americans—Da Nang, which is now a Soviet base; Aden, which used to belong to the British and is now freely available to the Soviets; Grenada, Wheelus Air Force Base, which used to be ours and is now laden with Soviet equipment.

All of this gives them a logistics lifeline that enables them to project their forces far from their shores.

In trying to cope with this problem, this administration recognized that we had to have a strategy that focused on more than just a short war in Central Europe, although our commitment to NATO continues to be a bedrock of our defense policy.

We recognized that we had to develop a flexibility to challenges at various points around the world.

5-YEAR DEFENSE PLAN

Similarly, Mr. Chairman, consistent with what you said, we recognized that we could not do everything at once, that we had to set priorities within this strategy, so we tried to develop a defense plan which extended over a 5-year timeframe and did establish some priorities. You mentioned a number of them—readiness and sustainability.

We felt it essential to move ahead with some strategic modernization. As you know, we are on only our third generation of missiles, while the Soviets are on their fifth. Our bombers are frequently older than the crews that fly them. We felt it essential to move ahead with a modest conventional modernization program, but here, too, the emphasis was on enhancing our ability to project our own power and own force mobility, hence a substantial investment in shipbuilding, rapid sealift, and strategic airlift.

Finally, we recognize that to extend ourselves to the potential flashpoints around the world we have to work more closely with both new and old allies in the national security area. We have tried to use our military assistance programs or military sales programs to give our allies a greater assurance of stability and security and to enable us to extend our own reach through the use of facilities, not only in Europe but also in places like Northern Africa and Southwest Asia.

As you correctly pointed out, this is an expensive program, but even after we finish the 5-year program we will still be spending a smaller percentage of our gross national product on defense than we traditionally spent in the fifties and sixties, and certainly we will be spending far less than the Soviets.

We think it is a minimum program required to support a strong foreign policy. At the same time we recognize that our allies can and should do more. I should point out they were doing more while we were doing less, but that does not make any difference. Given the enhanced nature of the threat, none of us can afford to do less. We all need to do more, and I can assure you that we have been engaged in an intensive diplomatic effort with our allies along these lines.

Those conclude my opening remarks, Mr. Chairman. I am now prepared for questions.

[The prepared statement of Mr. Carlucci follows:]

PREPARED STATEMENT OF HON. FRANK CARLUCCI III

DEPUTY SECRETARY OF DEFENSE

Mr. Chairman and Members of the Committee:

I welcome the opportunity to come before your committee today and discuss with you our nation's global military commitments.

Our nation's global military commitments continue to reflect national objectives that have remained relatively constant over the last thirty years. However, during this same time period, we have witnessed a shift and change in the geostrategic relationships among nations that have altered the nature of our military commitments. Specifically, we have witnessed a growth in interdependency of the world's nations, a growth in the capability of the Soviet Union to project its military power around the world, and, therefore, the need for US military capabilities that are mobile, flexible and powerful enough to react to crises that affect our national interests.

Our commitment to NATO and Europe is longstanding. It is embedded in shared values, and strong economic and political ties. It is a counterweight to continued presence of the Soviet/Warsaw Pact nations to the East--a Warsaw Pact whose qualitative and quantitative military capability has grown significantly.

In Southwest Asia and Africa, we see regions of the world that have tremendous strategic importance, particularly in terms of minerals and materials for which the United States, Western Europe and Japan, indeed all of the industrialized world, have become increasingly dependent. The Soviet Union and its proxies have established a major military presence which threatens the continued access and flow of vital resources from these regions.

In East Asia and the Pacific, we also have vital natural resources upon which we are dependent as well as long-standing relations with nations that have shared our values, ideals and many common intersts over the last thirty years. Here, too, we witness a growing military capability in the hands of the Soviets, and its Allies. Soviet Far East forces have improved, North Korean military forces have modernized and expanded, and Vietnam continues to provide bases to the Soviets and support occupational forces in Kampuchea and Laos with increased Soviet aid.

In the Western Hemisphere, we share with our neighbors both to the North and South a long, historical tradition based upon freedom to develop politically and economically, and to avoid the reach of outside imperial powers. However, the Soviets now pose a challenge to this hemisphere by intruding with military and political means wherever the opportunity arises, particularly through its Cuban ally.

During the post World War II period of the late 40s and early 50s, we established commitments to many areas of the world through formal Collective Security Agreements such as NATO, and ANZUS (Australia, New Zealand, United States) and, through bi-lateral agreements such as the Philippine Mutual Defense and Japan Mutual Defense Agreements. We were a powerful force in the world with superiority, particularly in the nuclear area. We remain committed to international rules of behavior such as freedom of the seas. We had and have responsibilities around the world because we emerged from WWII as a nation whose interests spanned the globe. What has changed from those times is the nature of the Soviet Union's military capabilities.

Given these commitments, and given our national interests, Mr. Chairman, I am sure we can all agree that our most fundamental overall objective is peace and stability in the world so that we and other nations can pursue our individual and collective well-being in a non-hostile environment--free from intimidation, coercion and aggression. However, the Soviet Union does not share this goal with us; in fact, it has interests inimical to ours which makes achieving our fundamental objective difficult.

Over the last few decades, there has been a significant change in the geostrategic situation. Chart 1 shows how the Soviet Union has succeeded in projecting its power by establishing outposts throughout the world: Danang, a former US base is now a Soviet base; Libya, where we once used Wheelus Air Base, is now an arsenal of Soviet arms; Aden, a former British port, is now a Soviet base; Afghanistan, formerly neutral territory, is now a Soviet occupation zone; and Grenada, formerly a peaceful island in the Caribbean, has become an airbase available to the Soviet Union. Additionally, Soviet use of proxy forces in Africa, such as East Germans and Cubans, as well as its supplying military equipment to export revolution in Central America, are further evidence of Soviet efforts to disrupt world order. At the same time, the Soviet Union has established a chain of modern air and naval bases in Asia from Siberia to the Mediterranean that provides them a logistics lifeline for power projection that can threaten US and allied interests and affect the balance of global military power.

What must we do to address this and other global problems? First, we must not lose sight of the substantial continuities in US policy. Mainly, that we are committed to a defensive use of military strength; that our objective is to deter aggression, or to respond to it should deterrence fail, not to initiate warfare. We must realistically face the implications of this defensive stance. Our military forces must be prepared to react after the enemy has seized the initiative, and to react so strongly that our counterattacks would inflict unacceptable damage on the enemy, thereby deterring them.

Secondly, we must correct immediate deficiences without sacrificing our overall capability to meet the enhanced Soviet threat. This must include a balanced force structure achieved by modernizing our strategic nuclear forces while at the same time increasing our ability to project forces abroad. Chart 2 shows that we continue to put our major focus, about 85% of the Defense budget, towards non-nuclear objectives. Also, our Defense program seeks only modest adjustments in our forward deployed forces. Map A reflects our 1980 posture which will alter only by the addition of one equivalent Carrier Battle Group in the mid-1980s.

In addition to increasing the potency, sustainability and readiness of our forces, our plan is to stay with the current deployment patterns--albeit with more flexibility in naval deployments--because the pattern is sound. Where we are increasing--and increasing dramatically--is in mobility forces to be able to deploy our CONUS-based forces wherever needed. This is why I have stressed the importance of our enhanced mobility program as reflected in our airlift efforts on Chart 3. We must develop mobile and flexible forces to respond to crises that will not be of our choosing, but to which we must react to protect our vital interests.

Thirdly, we must also recognize that without the complementary development of allied and friendly forces and facilities, we could deal with the new Soviet threats, if at all, only at much greater cost. It is important for our security to emphasize foreign military sales and other assistance programs to improve local security and help improve our forces' reach. This is one of our greatest tasks and challenges: to concert our plans and policies more completely with our allies so that we will have a common defense strong enough to ensure our freedom at a cost tolerable to all. Mr. Chairman, although the process is often slow, we are working very hard in the area of Southwest Asia, in Europe, indeed around the world to convince our allies that we will never abandon them, and that within the bounds of our individual potentials and limitations, we must all share the burden of mutual defense.

In particular, in the defense of our vital interests in the Persian Gulf region, our strategy is based on the concept that the prospect of combat with US forces, the potentially high cost of such combat, and the risks of escalation represent the most effective deterrent to Soviet aggression. This strategy, thus, has two dimensions.

First, we must have a capability to deploy rapidly a force strong enough to hold key positions, and we must be able to interdict and blunt a Soviet attack. Hence, we have proposed improvements in the Rapid Deployment Joint Task Force and in related mobility forces as shown on Chart 4 (Airlift and Sealift). Second, this strategy recognizes that we should have options for fighting on other fronts. Our growing maritime capabilities will help serve these options as will improvements in tactical air forces.

This is a difficult time for our nation and for our allies given worldwide economic problems, the need for greater efforts in defense, and the enormous pressures to reduce federal deficits. However, we believe the decline in our nation's security must be met with a coherent overall strategy, national policy and a fully justified defense budget. We are facing a dangerous decade, partly as a result of an enormous Soviet build up of forces in all categories. Only the Soviet Union has the power to inflict tens of millions of casualties on our population. Only the Soviet Union has massive and modern conventional and nuclear forces deployed, directly confronting our friends and allies in Europe and Asia. Only the Soviet Union has the forces and geographic proximity to threaten the free world's source of oil. Only the Soviet Union is a global superpower that can threaten us around the world and must be so deterred. Charts 5 and 6 illustrate some of the imbalances between US and Soviet military assistance. And the Soviet military investment continues to grow.

This year's defense budget is an important step on a long path towards achieving the necessary capability to deter the Soviet Union through the 80s. It is no less than the necessary investment to ensure our nation's present and future national security.

Mr. Chairman, I assure you that we in the Department of Defense are committed to the security of our nation, and the best management we can give to the Defense budget behind that commitment. I extend my sincere thanks and appreciation for your support and your committee's support during the past year. We request your continued support especially for this FY 1983 budget which reflects our commitment to our national security, and will demonstrate to the Soviets and the world our will and resolve to fulfill our commitments.

TROOP STRENGTHS IN EUROPE

Senator **Stevens**. Mr. Secretary, on that last point, I remember so well the years that we were going to NATO with Senator Cooper and Senator Javits and others, Senators Jackson and Hollings. We were opposing the efforts of the then majority leader to bring troops home on the basis that we would have mutually balanced force reduction. That was 10 years ago. Has there been any reduction in the Russian troops in this period of time? Have we had any mutually balanced force reduction successes?

Mr. **Carlucci**. Not to speak of. There were some token moves by the Soviets, but generally speaking the Warsaw Pact forces retain a quantitative edge of about 1.6 to 1 over the NATO forces. But, more significantly, the Warsaw Pact forces have been modernizing at a pace that exceeds the NATO forces, hence they are determined to overtake our qualitative edge, and the gap is quite clearly closing.

I don't know if General Smith wants to add to that.

General **Smith**. I think that your statement covers the situation.

FLEXIBLE FORCES STRATEGY

Senator **Stevens**. We have had a series of labels on our global strategy since I have been around here. We have gone from massive retaliation to nuclear deterrence; we have supported the concept of a 1½ war; we have gone to the concept of two fronts for deploying land forces; and we have two- or three-ocean navies. Now we have the label of flexible forces strategy.

Is flexible forces now another name for our overall global strategy? Do we read this right, that now we are talking about flexible forces without regard to these other strategies of the past?

Mr. **Carlucci**. As you are aware, Mr. Chairman, it is always a bit misleading to try to sum up a strategy in two words. I think it is fair to say that we recognize, as I said in my earlier comments that the geostrategic situation around the world has changed and there is greater Soviet capability to project power and to preempt the West from its access to vital raw materials. Therefore, we have to be prepared to deter in a range of locations.

Now, that does not mean that we think that we can take on the Soviets at any spot around the world, but it does mean that we have to be prepared to move quickly into areas that we have defined as being of vital interest to us.

As we looked to our own force structure, we found that we did not have the maritime capability, the rapid sealift capability, and the strategic airlift capability to do this. It does you little good to have the forces themselves if you can't get them there in time to serve as an adequate deterrent. So, it is fair to say that our strategy is one of trying to build up our force mobility so that we can respond to these various contingencies around the world.

ALLIES SHARED BURDEN IN PERSIAN GULF

Senator **Stevens**. We seem to be assuming a substantial burden in the Persian Gulf. That is fair to say, Western Europe depends more heavily upon oil from that source than we do, but we are taking on the burden apparently to defend the Persian Gulf.

We have a similar burden with regard to Japan. Why should our allies not be more directly involved in sharing that burden?

Mr. **Carlucci**. Let me say, first of all, Mr. Chairman, we agree with you. They should be more directly involved in sharing that burden. I think in terms of percentage of oil supplies, it is important to make one clarification: While it is true we receive only about 12 percent of our oil from Southwest Asia compared to a much higher percentage for Europe and Japan, should this access to oil be cut off we have oil-sharing agreements with our allies, so we would suffer equally and there would be a scramble for other markets of oil.

So, we have an interest in seeing that the oil lifelines are maintained to Europe and to Japan.

We have tried to work with our European allies in two directions: One, to get them to increase their presence and their support in Southwest Asia. Indeed, there are some allied naval forces in the area. A number of our allies have considerable political influence in certain countries. We have asked them to work with us in that area.

There is a possibility of various aid programs from our allies to the countries of Southwest Asia.

A second area in which we have tried to work with our allies is to get them to recognize that they would have to backfill should we be obliged to use some of our forces presently committed to Europe in a Southwest Asia contingency. They have been generally receptive to this. It is fair to say that they have not moved as rapidly as we would have liked, but I think it is equally fair to say that there has been some progress.

With Japan, we have tried to take a somewhat different approach. Rather than dealing in a pure numbers game, we have tried to define roles and missions. We have told the Japanese that they should be responsible for the defense of their homeland and sea lanes out to 1,000 miles. The prime minister has accepted this. The Japanese defense establishment is working toward these goals. They did vote a 7.8-percent nominal increase in the Japanese defense budget which would probably be a 4.0-percent real increase. It does not sound like a lot to us. Their overall defense effort is still only about 1 percent of GNP. But all the other budgets in the Japanese Government are either holding steady or going down, so we think we have begun some movement in Japan, once again, not as rapidly as we would like to see it, but some incremental progress.

Bill, do you want to add anything to this?

General **Smith**. I think in terms of the European contribution, their concept of division of labor, with which you are familiar, was offered by the German Government at the time as a way to help backfill for U.S. forces that would perhaps be used in Southwest Asia. That concept is still agreed. The details of how and what that backfill will and should be remain to be worked out, but the allies have been continuing to cooperate in that definition and have continued to express their willingness to help us fill that gap.

U.S. TROOP STRENGTHS IN EUROPE

Senator **Stevens**. General, I don't understand how they are filling the gap when we will have increased the troop strength in Europe by 58,000 over a period when they have reduced their own troop strength by 56,000. It seems to me we are taking on more and more of the financial burden of Europe as far as defense is concerned. It is reflected directly in the competitive prices of their products that they export to this country. Their products are not bearing the cost of defense even for their own countries.

Our products that we manufacture, the taxes our people pay, are bearing the cost and not only supporting the largest military effort in the world outside of the Soviet Union but also the cost of supporting the European regions, the Persian Gulf regions and the Japan region. We are bearing the predominant cost of defense abroad today, too.

Now, if we are asked to cut somewhere in this budget, I tell you I would much rather have two new carriers for this country, new tanks for this country, or new airlift for this country, than to increase the defense forces in Europe, the Persian Gulf, in Japan or anywhere else. I think that what we are trying to develop is just where is this going to leave us.

Senator Percy's committee comes out with a report saying any changes in the status of forces in NATO would be disturbing to NATO. Do you interpret that to mean if you increase their strength by 58,000 you are going to disturb them, because that is a change? I wonder if it is going to disturb them if we just say you cannot send the 21,000 increase now requested over there? We would like to know before we are through what the cost savings would have been if we hadn't followed your advice of sending those 58,000 more troops to Europe than were there in 1975.

EUROPEAN-BASED MANPOWER

Mr. **Carlucci**. Mr. Chairman, for the record, our figures seem to differ somewhat from yours, and maybe we ought to have the staff work them out. From 1981 to 1983 we have a projected growth in European based manpower ashore services of 8,000. This comparison is based on 1981 "actual" versus 1983 "authorized". Actual figures tend to be lower than authorizations. When "authorized" figures are compared for 1981 and 1983, the increase is only 2,000.

[The information follows:]

Growth of U.S. Manpower Strength in Europe

The following table provides an audit trail for the manpower numbers associated with current program planning and requests. The 1981 (actual) line represents actual manpower at the end of 1981. The 1981 (program) line represents the authorized manpower strength for fiscal year 1981 as reported to the Congress in the Defense Manpower Requirement Report (DMRR) fiscal year 1982. A comparison of these two lines shows that we had planned to have about 11,000 more troops in Europe at the end of fiscal year 1981 than are indicated. Part of this difference is due to accounting methods, and part represents an actual shortfall. Respectively: (1) one carrier group (approximately 5000 Navy and 600 Marine afloat) was out of theater on the last day of fiscal year 1981 and (2) we did not fill in-country spaces as rapidly as planned. In 1981 Army stationing and facility constraints limited growth. The Army ended the year with slightly higher actual manpower in Europe than would have been the "implied" authorized manpower baseline for these constraints.

The 1983 (DMRR) line represents a projection of authorized U.S. military manpower in Europe as presented to Congress in the Defense Manpower Requirements Report for fiscal year 1983. Subsequent review uncovered an accounting error in Army European strength for end fiscal year 1982 and end fiscal year 1983. The fiscal year 1983 (corrected) line represents corrections to these errors.

A comparision of "authorized vs. authorized," i.e., 1981 (program vs. 1983 (corrected)), shows a net manpower increase of only 2,000. This is composed of an Air Force increase of 5,600, a Navy increase of 1,000, a slight Marine Corps decrease, and an apparent Army decrease of 4,600.

The Air Force increase is attributable to (1) initial support of the Ground Launched Cruise Missile program, (2) additional Red Horse Squadron, (3) additional AWACS deployments, (4) increased mission capability (maintenance and flying hours) and (5) improved security. The Navy increase is attributable to expanded Naval air shore facilities in the Atlantic and Mediterranean. The "apparent" Army decrease is an adjustment in authorized manpower to reflect 1981 experience (i.e., takes into account stationing and facility constraints).

U.S. MILITARY STRENGTH IN EUROPE—1981–83

[Thousands]

	Total			Army	Air Force	Navy		Marine Corps	
	Total	Ashore	Afloat			Ashore	Afloat	Ashore	Afloat
1981 (Actual)	337.4	312.4	25.0	219.6	79.2	12.4	21.9	1.2	3.1
1981 (Program)	348.5	318.4	30.1	221.7	82.0	13.5	26.4	1.2	3.7
1983 (DMRR)	357.9	327.7	30.2	224.4	87.6	14.5	26.6	1.2	3.6
1983 (Corrected)	350.6	320.4	30.2	217.1	87.6	14.5	26.6	1.2	3.6

FORCE LEVEL DETERMINANTS IN NATO

Senator STEVENS. The numbers are based on 1975?

Mr. CARLUCCI. Yes. In that case, the total manpower has grown.

Senator STEVENS. That is the year they started dropping force levels. It appears as they dropped their force levels we picked up the tab. I would like to know about that. What is it that sets the determination of what troops we have over there—the overall agreed strength of NATO? If a foreign country such as Germany or France fails to meet their levels, do we just automatically fill it in?

Mr. CARLUCCI. No, we don't.

Senator STEVENS. How did we get this idea we should increase our troops by 58,000 after the tremendous battle that was fought in the Senate a few years previous to 1975, which was over the question of whether some of them should come home?

Mr. CARLUCCI. The increases, as I indicated, according to our figures, are about 35,000 between 1974 and 1981, but those increases are by and large used to enhance our own force effectiveness. We don't increase our forces because some Europen country may reduce its forces. I think you have to look, Senator Stevens, at the overall equation and we have to bear in mind that while the United States throughout the 1970's was, in fact, disinvesting in its military establishment, our real defense outlays between 1971 and 1980 declined, on the average, a little more than 1 percent a year.

The allies were increasing theirs at the rate of about 2 percent a year. Thus the combined real expenditures of our allies over this timeframe increased 20 percent, while U.S. total outlays decreased some 10 percent.

COST OF OVERSEAS DEPENDENTS

Senator **Stevens**. Mr. Secretary, our figures don't show that, Maybe we are in a numbers game and I will ask the GAO to get in and check them out. As a matter of fact, there is one figure that the Department gave us that I find incomprehensible, and that is, that it cost $807 a year to keep a U.S. Air Force dependent overseas. That is additional cost of a dependent overseas, $807. If they can keep one of my kids for $807 I have six of them—I would like them to take.

Mr. **Carlucci**. We will be glad to take them, Senator.

NATO SUPPORT COSTS

Senator **Stevens**. Our figures show in 1975 the United States had 299,900 troops in Europe and the allies had 2.94 million. In 1981 we had 337,000 and they had 2.884 million. The interesting thing is that when we asked for the cost of NATO support for 1980 we found that the U.S. support was $89.3 billion (in constant dollars) for NATO direct support in 1980. The allies' total was $98.1 billion. In 1981 it has grown to $107 billion for the United States and we were told the estimate for the allies was $110 billion. Although total spending had gone up some $30 billion, we had taken almost $20 billion of the $30 billion increase in 1 year.

Now, for this year of 1982 we are told that NATO costs the United States $122.3 billion. We can't get the allies' cost, but we are also told that in 1983 our costs will be $133.2 billion.

If you want to look at increased costs, Mr. Secretary, we have figures and we got them from the Department.

I am going to ask the GAO to look into some of these questions, but we have had a $43.9 billion, almost a $44 billion increase in a 3-year period on a base of $89 billion.

We have had roughly a 50-percent increase in real terms in the total cost of defense of NATO in a period of 4 fiscal years.

We are asked to start cutting some money somewhere.

Mr. Secretary, I want those new tanks and new airplanes and new aircraft carriers, and I want to know what is going on in NATO.

When I first got into this I thought perhaps we might reduce costs that were rather static. I have been sort of surprised to find out that we are looking not only at static costs in NATO, but also we are looking at a rapidly expanding commitment to NATO, and no wonder they are misunderstanding us.

Mr. **Carlucci**. Mr. Chairman, I think it would be very good to get GAO to work with us on this, because we need a common data base. It is very difficult to try to describe what the cost of NATO is. In the first place, U.S. forces are multipurpose. They may be available for NATO, but they may also be available for other areas.

MASTER RESTATIONING PLAN

Senator **Stevens**. Why are they stationed in NATO in increasing numbers then? Why are we closing bases throughout this country on the basis that we can't afford them, and opening new ones in Europe?

Mr. CARLUCCI. We are not opening new ones; we are talking about a better stationing plan.

Senator STEVENS. We are building new ones.

Mr. CARLUCCI. That is the master restationing plan, but we have yet to persuade the German government.

Senator STEVENS. It is on the books. Why should we be closing bases in this country, restationing troops over there, while having new airlift at the same time?

Mr. CARLUCCI. I think the answer is, by redeploying our forces we not only provide them with better facilities, but also we can make more effective use of them. That indeed may enable us to bring about some reductions in numbers without reducing our overall capability.

Let me also point out that the figures you cite, in all probability—and I am not sure I wholly understand them—do include modernization. For example, we are now bringing the M-1 tank over to Europe. Those figures include the M-1 tank instead of the M-60 tank. They are obviously going to be higher. So that does include the enhancement of the capability of our forces.

I don't think they are strictly related to numerical changes in our force structure.

Senator STEVENS. I am told you are adding 3,300 new people in England alone in a new Air Force buildup, a new deployment now to the British.

General SMITH. There are several things underway, Senator. You may be talking about the fact that we are going to have the ground-launched cruise missile sites going in there in 1983. There will be some additional U.S. forces required for that deployment.

NATO PERSONNEL INCREASES

Senator STEVENS. Why don't you redeploy some of those already in Germany? Mr. Secretary, if the allies have decided in their own defense that they can reduce the numbers of their own people by 56,000 people, what are we doing making the decision that they need 58,000 more? That is the basic question in this hearing to begin with. By the time we get to Thursday and Friday we are going to make some inquiries as to what it costs to keep these people there, and why can't we keep them at home.

Mr. CARLUCCI. What we are talking about, of course, in the case of the ground-launched cruise missile, is the 1979 commitment.

Let me emphasize once again we would like to see the NATO allies do more, and we are urging in that direction, although when you get into the numbers games it can be very misleading.

There are such things as infrastructure costs which the allies bear. We have higher cost for our personnel than a number of our allies; all of them, with exception of the U.K. and Canada, have military conscription. So, if they were to pay their people on a comparable level, the combined defense spending of the non-U.S. NATO allies in dollar terms would be higher.

The Germans have the support of Berlin; they have the loss in tax revenue for American bases. There are a number of things that have to be taken into consideration in putting together the overall equation.

Senator **Stevens**. Mr. Secretary, I am going to yield to my colleagues on the basis of when they came in here for the hearing. I do want others to participate. They may not agree with the direction in which I am going.

I would like to ask some questions, but I don't think you have the answer here. I just want to make certain you know I do want them for the record. We are going to have th GAO take a look at them. We want to know what is the current cost of maintaining our commitment abroad and how does that compare with the years of spending after Vietnam, the prior years back to Vietnam. We don't want the Vietnam years.

Mr. **Carlucci**. May I ask for a point of clarification.

When you ask for the cost for maintaining our people abroad and we go through the calculations, do you want us also to calculate the costs of returning the forces and headquarters to the United States and the facilities that must be constructed for that purpose? Or do you also want to include the costs that would be added to our mobility forces if we were obliged to return them to an area in the event of a crisis?

COSTS OF MAINTAINING U.S. FORCES IN NATO

Senator **Stevens**. Right now we are asking what it costs over there. If you want to give us the cost on the assumption that the Senate might decide that you have to bring them home, that is fine with me.

Also, let us have the cost to move these 21,000 abroad, the ones you are planning to add in fiscal years 1982 and 1983. What is the cost.

Mr. **Carlucci**. We can get you that.

[The information follows:]

Cost of Adding Forces to Europe

The vast majority of the referenced increase in military manpower is already in place in Europe. The projected increase in authorized strength from fiscal 1981 to fiscal 1983 is only about 2000. The one time permanent change of station (PCS) cost of adding these 2000 persons to Europe is about $12.2 million.

RAPID DEPLOYMENT FORCE

Senator **Stevens**. In this, of course, is the Rapid Deployment Force. We are talking about the cost of maintaining our commitments abroad. Some of those costs may be here at home.

What is the cost of these commitments abroad? We would like to know what costs do you envision in the out-years if we follow this global strategy of flexible, conventional forces operating around the world under a nuclear umbrella. That is the vision we currently have what the global strategy is.

OVERALL COST OF MAINTAINING NATO FORCES

A separate item: What is the annual cost of maintaining all military forces in Europe and how has it changed in the past decade?

In particular, I would like to look at the cost of it at the time Senator Mansfield thought it was too much and what is it today. We have had on two or three separate occasions a Mansfield amendment. I would like to know what was it costing then when the country just barely rejected the Mansfield plan of starting to bring some of these troops home. What is it costing today, and what is the total cost of the Rapid Deployment Force, and all of the supporting assets.

[The information follows:]

COST OF U.S. DEFENSE COMMITMENT TO NATO

In recent years, the Department of Defense has responded to Congressional requests for information on the cost of the U.S. contribution to NATO by "allocating" our forces to various regions of the world where they might be needed and then determing the cost of maintaining them. This approach has obvious shortcomings. The two most obvious defficiencies are:

—U.S. forces are multipurpose. While U.S. forces are available to meet any aggression in Europe by the Soviet Union and its allies, they must also be able to respond to threats against U.S. security in other regions of the globe. Thus, even if our NATO commitment were suddenly to disappear, we would not be able to deactivate any significant portion of our forces in Europe, much less those in CONUS whose curent primary mission is rapid deployment to Europe.

—Much of the U.S. force structure not directly allocable to Europe nevertheless supports our NATO strategy and deterrent posture. Our strategic nuclear forces and the Rapid Deployment Joint Task Force (RDJTF) are examples.

For these reasons, the Department is developing an improved set of estimates that will give the Congress a better sense of the costs associated with particular deployments, or changes in these deployments.

Because possible troop withdrawals have been a subject of great current interest to the Congress, we have developed an interim estimate of the effect on Defense TOA of withdrawing troops from Europe and restationing them in the U.S. In all cases, the costs of returning the forces and headquarters and of refurbishing or contructing the appropriate base facilities in CONUS result in increased TOA through the next five years. For the illustrative options depicted in the following table (Part A), the added 5-year costs range from $800 million to $17 billion.

If we intend to maintain a capability to defend against aggression by the Warsaw Pact, additional mobility forces must be purchased to transport the troops back to Europe when necessary. These five-year costs, as shown in Part B, could range from $5 billion to $20 billion. In Options 1 and 2, enough mobility assets are procured (airlift and fast sealift) to return these forces to Europe by M+30. In Option 3—complete USA and USAF withdrawal—no such capability is procured due to its enormous cost; therefore, no capability for rapid return exists.

Figures in the three options depicted in the following table are based on generic cost of restationing Army and Air Force units both new and refurbished bases in the U.S. We are conducting a study of the specific basing actions that would probably be taken if any of these three levels of withdrawal were to be undertaken. We will then price out these actions to obtain a more precise estimate of the costs of withdrawal. We hope to have that study completed by the beginning of withdrawal. We hope to have that study completed by the beginning of June.

If the costs of restationing U.S. forces in Europe seem high, it must be remembered that we are talking of moving and relocating about one-third of our active Air Force and Army tactical forces from the bases where they have been permanently stationed for 37 years. This would involve a massive movement of men and material (e.g., 800,000 tons of Army ammunition), not to speak of rethinking our entire NATO strategy.

TABLE

[Dollars in billions]

	Fiscal year 1983	Fiscal year 1983-87
PART A— Restationing Costs: Illustrative U.S. Troop Withdrawals From Europe:		
Option 1: 1 division, 2 TFW	0.1	0.8
Option 2: 1 corps, 5 TFW	.4	8.5
Option 3: All Europe-deployed USA and USAF forces	.8	17.0

TABLE—Continued

[Dollars in billions]

	Fiscal year 1983	Fiscal year 1983–87
Part B—Restationing Costs With Provision of Mobility Forces:		
Option 1: 1 Division, 1 TFW:		
Restationing	0.1	0.8
Additional Moability	.1	4.3
Total	2.2	5.1
Option 2: 1 Corps, 5TFW:		
Restationing Costs	0.4	8.5
Additional Mobility	2.2	11.2
Total	2.6	19.7
Option 3: All USA and USAF Forces:		
Restationing Costs	0.8	17.0
Additional Mobility		
Total	0.8	17.0

CLARIFICATION ON FORCE LEVELS

Mr. CARLUCCI. Once again, I don't want to haggle, but we do need, at the staff level, to get some clarification. When you talk about the Rapid Deployment Force, do you want to include in that calculation the strategic airlift and rapid sealift that might be necessary? If so, some of that is redundant; it will also be used in NATO.

Senator STEVENS. We don't want redundant statistics, obviously, and some of them are not redundant. You certainly cannot be using them in NATO support at the time you do take them for the RDF. Once they are committed to RDF they are no longer NATO, are they?

Mr. CARLUCCI. Once we go into action, of course.

Senator STEVENS. That is right.

Mr. CARLUCCI. Generally, our forces have a primary mission and a secondary mission, but strategic airlift is fully flexible; it can be used anywhere in the world.

Senator STEVENS. Since the RDF is for all intents and purposes part of the European commitment anyway, I don't think we ought to dance on the head of a pin. It certainly is not designed to protect Japan.

Mr. CARLUCCI. We are creating a separate, unified command to precisely emphasize the point that it is not part of the European commitment. The Joint Chiefs have been directed to come up with a separate unified command by the first of the year. So, we are breaking off units such as the 101st Air Assault, 82d Airborne, and 8th Tactical Air Wing and saying your No. 1 mission is the Rapid Deployment Force.

Mr. STEVENS. If it is good enough to be sent around the world, why is it not necessary to go to Europe and and bring some of these troops home?

Mr. CARLUCCI. It will have that as a secondary mission.

INDIAN OCEAN AND MEDITERRANEAN SITUATION

Senator **Stevens**. We have not mentioned the Indian Ocean and the Mediterranean. We have an impression that we have a substantial increase in cost again since the Mansfield days in both the Indian Ocean and in the Mediterranean.

We would like to know what is the 5-year cost of Indian Ocean and Mediterranean involvement and what are the projections there.

Do we see a buildup in both of those areas, RDF as well as the NATO structures?

Mr. **Carlucci**. Yes, we do have; we have had for several years a carrier battle group in the Indian Ocean. We have moved from a total of approximately three carrier battle groups in the Indian Ocean and the Mediterranean to about two and a half at the current time.

We have found that that stretches us very thin. Here, too, though, let me emphasize that the Soviet presence in the Indian Ocean has increased markedly at the same time as we have become increasingly dependent on oil from Southwest Asia and strategic minerals from Africa. It is more difficult to cost out a carrier battle group which rotates but we will try to provide you with the best figures we can.

[The information follows:]

Cost of Indian Ocean and Mediterranean Involvement

We are developing the costs requested in a manner that permits identifying those costs uniquely associated with our force deployments. Since many of the Naval forces deploy in this area on a rotation basis, however, this is a very difficult question to answer, and it will require additional time to provide accurate estimates. We will forward the requested information to the Committee as soon as it is available, and expect to have it ready in approximately one month.

FORCE DEPLOYMENT IN WESTERN PACIFIC AND NORTHEAST ASIA

Senator **Stevens**. There are two more:

I would like to have the total costs of deploying our military forces in the western Pacific and Northeast Asia and how has that changed in the same 10-year period. What are our increasing difficulties here in this hemisphere as far as the changes in our military global strategy vis-a-vis the American hemisphere?

What similar cost data do we have on commitments we have in our own hemisphere and what do we see in terms of projections for increased cost in the area? Please supply that for the record.

[The information follows:]

Fiscal Year 1983 Costs of U.S. Commitment in the Caribbean

We are developing the costs requested, in a manner that permits identifying those costs uniquely associated with our force deployments. Since many of the Naval forces deploy in this area on a rotation basis, however, this is a very difficult question to answer, and it will require additional time to provide accurate estimates. We will forward the requested information to the Committee as soon as it is available, and expect to have it ready in approximately one month.

SOVIET GAS PIPELINE

Senator **Stevens**. I am sure you know I am one who has a really big question mark around the whole relationship to NATO as a result of the commitment of the NATO countries to build the Soviet gas pipeline. Some people think it is provincial. That pipeline is not going to carry Alaskan gas and it has nothing to do with Alaskan gas. We happen to know something about building large pipelines and that is longer than the one we are trying to build and will cost more, primarily because of the currencies involved.

If they have reached the point now, Mr. Carlucci, that they can rely upon the Soviets for an increased gas supply and feel comfortable with that, then I don't know any reason why we should be increasing our commitment, particularly our ground forces commitment, to defend them.

I do think it is incumbent upon the Department of Defense to take into consideration some of those things, and the people in Europe ought to understand. I don't think that I am alone—there may be others around the country who disagree—but I don't think I am alone in the Congress on the question of our continued increase in our commitment to the NATO countries if they are going to buy, some of them, up to 35 percent of their gas supply, and 6 percent of their total energy supply, from Russia.

The argument is made they have to buy it because of the instability of the Middle Eastern oil. Who is making Middle Eastern oil unstable if it is not Russia? I don't see any reason for us to be taken for granted, and we are being taken for granted. After the Mansfield vote I think the Europeans decided that our U.S. military is running the show so far as how many troops can be sent to Europe and how much money can be spent in Europe.

The time has come to tell them that that is not the case. I intend to make attempts to substantially reduce the cost of the operations and commitments to Europe this year in lieu of meeting some of these demands to reduce those aircraft carriers. I think everyone ought to know it, because as far as I am concerned that is the battle.

I would rather have the aircraft carrier than to have 21,000 more troops in Europe in this period of time.

Mr. **Carlucci**. Mr. Chairman, I can only sympathize with what you have said about the pipeline. We indeed think the pipeline is unfortunate, but there is an underlying assumption in what you say, that the U.S. withdrawal of some unspecified number from Europe will automatically spur the Europeans into greater action.

I am not sure that assumption is valid. I think working through the NATO structure, working through diplomatic means, pointing out to them the increased nature of the threat, is likely, in our judgment, to be more productive. We are certainly delighted to look with you at the whole question of the balance of U.S. force structure. I think that is an appropriate subject.

U.S. FORCE STRENGTH CHANGES IN NATO

Senator **Stevens**. It may not be withdrawal at all. Let us talk about the ones we are sending over there. Why the commitment at this time?

Mr. **Carlucci.** We will get some data on that. As General Smith says, some of it is the cruise missile and Pershing programs.

[The information follows:]

Change in strength of US Military Forces in Europe

The following two tables illustrate US military manpower trends in Europe during 1975-1983. Table 1 displays actual military manpower strength deployed in western and southern Europe, by Service, on 30 September of each year 1975 through 1981. Over the six-year period, total manpower strength (excluding afloat) grew by 32,000 (11.7%). Army manpower levels rose by 22,800 (11.6%) while Air Force personnel strength grew by 10,000 (14.5%). Navy and Marine Corps shore establishments have remained essentially constant. The fluctuations in the Navy and Marine Corps afloat strength are mainly a function of the reporting system. The statistics contain the actual deployments reported on the end day of each fiscal year and are subject to large variation as ships rotate in and out of theater. The average annual ship deployments for this time period have remained relatively constant, with a slight rise in manpower attributable to introduction of more capable ships.

The principal reasons for the changes in reported manpower through 1981 are as follows:

- Army: (1) increased manning levels primarily for combat and selected non-combat units; (2) new structure; (3) force modernization; (4) additions to European commands (ACC, INSCOM) other than USAREUR; and (5) modest increases in community support.
- Air Force: (1) addition of eight squadrons (F-16, F-111, A-10, F04 and F-5); (2) reduction of two tactical reconnaissance squadrons (RF-4C);(3) base drawdowns; (4) conversion of eleven F-4 squadrons to F-111, A-10, and F-15 squadrons and (5) additional KC-135 capability.

The 1983 (DMRR) line represents a projection of authorized US military manpower in Europe as presented to Congress in the Defense Manpower Requirements Report for FY 1983. Subsequest review uncovered an accounting error in Army European strength for end FY 1982 and end FY 1983. The FY 1983 (corrected) line represents corrections to these errors.

A comparison of "authorized vs. authorized," i.e., (program) vs. 1983 (corrected), shows a net manpower increase of only 2,000. This is composed of an Air Force increase of 5,600, a Navy increase of 1,000, a slight Marine Corps decrease, and an apparent Army decrease of 4,600.

The Air Force increase is attributable to (1) initial support of the Ground Launched Cruise Missile program, (2) additional Red Horse Squadron, (3) additional AWACS deployments, (4) increased mission capability (maintenance and flying hours) and (5) improved security. The Navy increase is attributable to expanded Naval air shore facilities in the Atlantic and Mediterranean. The "apparent" Army decrease is an adjustment in authorized manpower to reflect 1981 experience (i.e., takes into account stationing and facility constraints).

Table 2 provides an audit trail for the manpower numbers associated with current program planning and requests. The 1981 (actual) line represents actual manpower at the end of 1981. The 1981 (program) line represents the authorized manpower strength for FY 1981 as reported to the Congress in the Defense Manpower Requirements Report (DMRR) FY 1982. A comparison of these two lines shows that we had planned to have about 11,000 more troops in Europe at the end FY 1981 than are indicated. Part of this difference is due to accounting methods, and part represents an actual shortfall.

Respectively: (1) one carrier group (approximately 5,000 Navy and 600 Marine afloat) was out of theater on the last day of FY 1981 and (2) we did not fill in-country spaces as rapidly as planned. In 1981 Army stationing and facility constraints limited growth. The Army ended the year with slightly higher actual manpower in Europe than would have been the "implied" authorized manpower baseline for these constraints.

TABLE 1
HISTORICAL
US MILITARY STRENGTH IN EUROPE
(Thousands)

	Total			Army	Air Force
	Total	Ashore	Afloat		
1975	301.6	279.6	22.1	196.8	69.2
1976	315.0	274.0	41.1	191.4	66.4
1977	313.1	281.3	31.8	199.9	68.3
1978	330.0	295.0	34.8	207.3	74.3
1979	325.2	300.2	25.0	211.6	75.4
1980	331.7	309.4	22.3	217.6	77.8
1981	337.4	312.4	25.0	219.6	79.2

	Navy		Marine Corps	
	Ashore	Afloat	Ashore	Afloat
1975	12.1	19.9	1.3	2.2
1976	13.6	39.4	2.6	1.6
1977	12.1	27.2	1.1	4.6
1978	12.2	32.6	1.4	2.2
1979	12.0	21.2	1.2	3.8
1980	12.4	15.7	1.6	6.6
1981	12.4	21.9	1.2	3.1

TABLE 2
US MILITARY STRENGTH IN EUROPE
1981 - 1983
(Thousands)

	Total			Army	Air Force
	Total	Ashore	Afloat		
1981 (Actual)	337.4	312.4	25.0	219.6	79.2
1981 (Program)	348.5	318.4	30.1	221.7	82.0
1983 (DMRR)	357.9	327.7	30.2	224.4	87.6
1983 (Corrected)	350.6	320.4	30.2	217.1	87.6

	Navy		Marine Corps	
	Ashore	Afloat	Ashore	Afloat
1981 (Actual)	12.4	21.9	1.2	3.1
1981 (Program)	13.5	26.4	1.2	3.7
1983 (DMRR)	14.5	26.6	1.2	3.6
1983 (Corrected)	14.5	26.6	1.2	3.6

MODERNIZATION PROGRAMS

General SMITH. We have a number of other modernization programs going on. As you get more complicated equipment, it takes a few more people to man them and keep them operating. That is part of it. I am not sure of that figure of 58,000. We will research that.

Senator STEVENS. Mr. Rudman?

Senator RUDMAN. Thank you, Mr. Chairman.

We have been kind of arguing about numbers here for the past 20 minutes. It seems almost impossible at these hearings to get everyone on either side of these tables to agree on numbers. I don't know why, but I have found out nobody in this government knows what the numbers are about, Defense included.

Let me ask you about one number that you ought to be able to answer. If my memory serves me correctly, in 1978 the NATO Defense Ministers held a very major summit conference. Major policies came out of that conference. I believe it was held in Rome. I may be incorrect as to location. At that conference there was an absolute commitment of 3 percent real growth in defense spending by each of those NATO allies. Now, that was an understanding that was reached after substantial negotiations. It really relates back to what the chairman has been talking about in many ways in the past 20 minutes.

SUMMIT CONFERENCE COMMITMENTS

My question is, Am I correct that in fact those commitments made at that summit have not been met?

Mr. CARLUCCI. That would be too much of a generalization. You are correct in saying that not every country met its commitment every year, including the United States.

Senator RUDMAN. That is good enough for me.

Mr. CARLUCCI. But there are a number of countries—I think currently there are about eight countries—that are meeting their percent commitment. That tends to go up and down. The weighted average now is somewhere in the neighborhood of 2.4, 2.5, 2.6. There are those who are exceeding their commitment.

Senator RUDMAN. I think you will probably find if you look at the composite, that it is probably somewhat less than what was agreed to; is that correct?

Mr. CARLUCCI. It is less than the 3 percent.

Senator RUDMAN. At least we can agree on that. So, I guess the simple answer is that they did not meet their commitments in the aggregate that they agreed to in 1978?

Mr. CARLUCCI. In the aggregate, that is fair.

U.S. FORCES IN KOREA

Senator RUDMAN. I just want to understand that.

Now moving on to a couple of other areas—and we have a number of witnesses this morning and I don't want to take too much time—the Carter administration, of course, had started a phased withdrawal of American troops from the Korean peninsula. That was reversed. There was a reluctance to upgrade South

Korea's military force structure during the latter part of the administration due to other political considerations. That, of course, has been changed and this administration has now announced major initiatives to buttress South Korea's military forces, which I agree with, that is good.

The question is that if, in fact, we are doing that and being somewhat familiar with their ground forces, at what point does this administration think it can start some major withdrawals of major elements of the 2d Infantry Division and other units from that peninsula, thus giving us those troops for use in some other worldwide commitment?

Mr. **Carlucci**. As you pointed out, the South Koreans are making an intensive effort. Indeed, they are spending about 6 percent of their gross national product on defense, which is at least as high as ours, perhaps a little bit higher. I think they have made impressive progress. They have made good progress in building their defense industrial base. They are now making an effort to market some of their military equipment in other countries. They are still seized with very serious economic problems, so the amount of GNP that they devote to defense represents a real sacrifice for them. Unfortunately though, all the indications are that North Korea continues to arm at least as rapidly a pace and we see no signs whatsoever that Kim Il-Song's aggressive intent with regard to South Korea has slackened.

The South Koreans have offered negotiations several times, but in large have been rebuffed. On several occasions the North Koreans have engaged in exercises that were highly threatening, on a massive scale. So, we can't measure what the South Koreans have done, as admirable as that is, in isolation. We have to measure it against the threat from North Korea, which is a real and indeed a growing one.

Senator **Rudman**. So, your answer would be, I assume from that, that there are no plans whatsoever for any force reductions of U.S. ground forces?

Mr. **Carlucci**. We have no immediate plans for reductions.

Senator **Rudman**. So the commitments, which are enormous in terms of support, will stay in South Korea for the future?

Mr. **Carlucci**. We have every intention of keeping the 2d Division there.

JAPANESE DEFENSE COMMITMENT IN FAR EAST

Senator **Rudman**. In the Far East there is rising discontent with the Japanese failure to meet their commitments. I would just like to ask you if you can tell us publicly what else is going on that you are aware of to get them to increase their commitments in the foreseeable future and what the likelihood is to have them meet those commitments on a basis that we can explain to our constituents.

Let me tell you why I ask the question. We are talking in geostrategic terms. You tell people in my State or Senator Stevens' State or Senator Johnston's State that we are reducing substantially our commitment to, say, the Export-Import Bank, to give you a number, that allows American companies to compete aggressively. Recently, I know of five major international contracts awarded to major Japanese companies only because their government subsidizes their interest rates at 7, 8, and 9 percent, with the result that the American companies cannot compete. They compete to take these jobs from this country, on top of that, to rub salt into the wounds, they build their own technology up with their own government funding and ship those goods into America to compete against American products.

Now, to add further salt to the wounds, we are being told we must continue to maintain our forces to defend them because they will not even meet a quantum of what they should in terms of their GNP proportional expenditure.

I can only tell you that we are getting close to the point where this Congress, with the proper leadership—and I think it is here—will start pulling funds from that kind of support.

I would like you to tell me at what point we can expect them to carry their share.

Mr. **Carlucci**. Let me make a couple of points:

One, as I said at the outset, the Soviet threat in the Far East has increased rather significantly. They have a substantial number of Backfire bombers—I think the number is close to 50—deployed in the Far East. They are moving SS-20 missiles close to about 10 bases in the area. Their naval presence has increased very considerably.

We have been working with the Japanese to convince them of this threat. I think by and large they have now accepted that.

We have conducted a study. The Japanese then did their own study which agreed with ours. We have engaged in a dialog at the highest level, Presidential level, with the Prime Minister. The Japanese officials have visited here. Their Foreign Minister, the equivalent of their defense minister, and the Japanese defense agency have visited here. We have had dialog with them

I have visited Japan. Secretary Weinberger most recently visited Japan and both privately and publicly made it clear that they have to do more in the interest of the overall Western defense.

I think it is fair to say that they accept that. We have overcome the constitutional difficulties that seemed to exist at the outset. We do have them philosophically with us.

I think it is really a question of at what pace they move. As I indicated earlier, they are beginning to move, but it is at a pace that is slower than you and I would find acceptable.

Senator **Rudman**. I think the net result, unless that changes, with all the conversations that are going on—but actions speak louder than words—I would not be surprised to see a major movement here in the Congress, certainly in the Senate and maybe in this subcommittee, to start sending messages to them that either they are going to meet their fair share and then compete with us in world markets, doing at least some percentage of what we are doing in terms of their own defense, or else we are going to do something else.

There is only so long we can talk, then there is a point when we have to take action, Mr. Secretary.

I hope the message will get out to them that many of us feel that our commitments in their behalf are a bit too heavy for what our economy encounters at this time. I know that is nothing you specifically can change, but I think they had better change it and I think we ought to plan that maybe some of that force structure could better be used someplace else.

Mr. **Carlucci**. Let me make a couple of points there, too, Senator Rudman, because we get into somewhat the same discussion I had with Senator Stevens.

If you withdraw our forces, say, from Okinawa or from the Japanese mainland where we home-port a carrier, where do you put them, and the opportunity costs. All of those have to be factored into the equation.

The Japanese do more by way of host nation support than any other country. Per U.S. soldier, I think they are putting in something like $20,000, which is the highest of any of our allies.

Senator **Rudman** [presiding]. Mr. Johnston?

VIABILITY OF THREAT FROM NORTH KOREA

Senator **Johnston**. Mr. Carlucci, our commitment to Korea is indeed of longstanding and was actully put together at a time when China was still our adversary. Now, given that we have an accommodation with China now, how does that change the equation between us and North Korea, particularly the ability of the North Koreans to maintain a credible offensive on the south?

Mr. **Carlucci**. If you just look at it in terms of sheer numbers, the North Koreans have substantially greater forces than the South Koreans. I mentioned that the South Koreans devote 6 percent of their gross national product to defense. If my memory serves me correctly, the North Koreans devote at least 20 percent of their gross national product to offense. Everything in North Korea is subsumed to the military, very much like the Soviet Union. That is the highest priority

Since the Korean war of 1952 they gained a substantial measure of self-sufficiency.

I don't think anyone can predict what role China will play. China says it has no role to play in North Korean affairs.

CHINESE ROLE IN NORTH KOREA

Senator **Johnston**. Surely we have talked to the Chinese about this?

Mr. **Carlucci**. Yes, we have, of course, talked to the Chinese, but I would not be at liberty to comment on those kinds of discussions. North Korea in its own right has a very substantial capability and South Korea would certainly be at a very great disadvantage were we to withdraw the 2d Division.

Senator **Johnston**. My point is this, that without Chinese help, maintaining an offensive would be much more difficult for the North Koreans.

It seems to me we ought to have the right to expect from the Chinese that they tell the North Koreans that they would not get any support in case of invasion of the South. If that, in turn, is so, then the threat to the South will not be nearly as great.

Mr. **Carlucci**. You may be able to tell that to the Chinese, but I am not sure what the Soviets will do.

Senator **Johnston**. The Soviets don't have as ready access to North Korea.

Mr. **Carlucci**. As I indicated, they are developing a substantial ability to project their power and it would not be very difficult at all for them to have lifelines into North Korea.

Senator **Johnston**. They do not have such lifelines at this time though?

Mr **Carlucci**. I am not aware of any.

Senator **Johnston**. And we could do the same kind of power projection without having the troops there, could we not?

Mr. **Carlucci**. The distances for us are a lot longer. If the Soviets became involved on behalf of North Korea, we would obviously have to reinforce our troops in South Korea. All of this is highly speculative and hypothetical at this point.

JAPANESE EFFORT IN DEFENSE OF WESTERN PACIFIC

Senator **Johnston**. Let me say as a generality that I strongly support Senator Rudman's point about the Japanese not doing their part. I think there is a very strong feeling, just waiting, in effect, to be ignited. I see Senator Rudman striking the match. I think that pervades the Congress. We are not fussing at you. This is the first place that I have been where I have gotten the forum to make the comment I think it is ridiculous.

Mr. **Carlucci**. May I make two points? One is that regarding these commitments that we talk about—and I really think the basic responsibilities and U.S. interests, which became worldwide since World War II, are basically in the interest of U.S. security. Because, if there were any lesson that we learned in World War II, it is that we do not want to fight on our own shores—it is misleading to say we are defending Europe for the sale of the Europeans, or we are defending Korea for the sake of the Koreans.

Senator **Johnston**. We can perceive that U.S. interest a lot differently than we did in the days of the domino theory. The domino theory may still have some relevance and some correctness, but not quite to the extent it did back in 1950.

Mr. **Carlucci**. If you want to look at that, one of the things I mentioned in my opening comment was the importance of Da Nang. It gives the Soviets an enormous capability to project their maritime power into the Indian Ocean. So, these countries are not lost without a price.

A second point I would make is that we have to be very careful about the effects of whatever we do. We want to produce a positive result and not a negative result. We are, after all, dealing with sovereign countries and there are techniques in dealing with sovereign countries which work, and there are techniques which frequently are counterproductive.

Senator **Johnston**. It has not worked with the Japanese so far, whatever we have been doing.

Mr. **Carlucci**. I would argue that we have made some progress.

Senator **Johnston**. Is it less than 1 percent of GNP they spend on defense?

Mr. **Carlucci**. Yes, but their defense contributions are going up. In real terms, their growth between fiscal year 1982 and fiscal year

1983 will be over 3 percent. We think that is a significant breakthrough.

Senator **Johnston**. I can tell you it is not nearly enough. It is not nearly half enough; it is not a third enough.

Let me ask you this, Mr. Carlucci. Being stationed in Europe used to be a real plum. When I was there in 1950, it was very nice. People liked to go over there. The dollar was 4.20 deutchmarks, very nice. Wiesbaden was wonderful. I was in Frankfurt. Now it is not so nice; it is very expensive. I don't know who did the cost accounting which says the cost of keeping that dependent overseas is $807 per dependent. I can tell you that is not right, that can't be right.

Mr. **Carlucci**. I think that is incremental cost; it is not a total cost.

Senator **Johnston**. Maybe in that respect it is so. I would even doubt that is so because I know how incredibly expensive it is over there.

SHORT ROTATION TOURS IN EUROPE

My question is this: Have we considered sending our troops over there for 6 months at a time without dependents, rotating them back maybe with a mirror group that just changes places every 6 months, so that we don't have to take all those dependents over there? Have we ever considered doing that?

Mr. **Carlucci**. I will ask General Smith to address it. Let me make the comment that we do have a problem, that about 50 percent of a serviceman's career is going to be spent in Europe. Unaccompanied it is 24 months, and an accompanied tour is 36 months, except for first-term enlistees an unaccompanied tour is 18 months. Living conditions today, as you correctly point out, are far less than desirable. In fact, some of them are just plain deplorable.

One of the purposes of the master restationing plan is to help our people with respect to living conditions as well as to enhance our force capability.

Let me ask General Smith to elaborate.

General **Smith**. It has been looked at before, very seriously. I have not reviewed it recently, but I believe the cost will be greater because you have to maintain two facilities instead of one, one here for those people with their families and an installation overseas as well.

The U.S. Army now is looking at the idea of rotating, but I think they intend to take, to the extent they can, their families with them for a longer period of time, because experience has shown that is a more cost effective way of maintaining our forces in a ready posture.

Senator **Johnston**. You mean they would have a longer tour of duty in Europe, for example?

General **Smith**. General Meyers, chief of staff of the U.S. Army, is working on a scheme where he would rotate units the way you suggest, but for longer periods of time; and, as I understand it, they would have their families with them so they would be effective as a unit. It would not save cost in the sense that you are looking at it by having them without a family for a short period of time.

Senator **Johnston**. It seems to me that having the families there takes away from the fighting capabilities.

General **Smith**. Our experience has shown it is quite the reverse. Separation leads to family instability and uncertainty.

Senator **Johnston**. Certainly for a period of 2 years without the family—we send people to the Indian Ocean in the Navy for extended periods of time. I don't know what the morale problems are.

Mr. **Carlucci**. And they have substantial divorce rates in the Navy.

Senator **Johnston**. I suspect we do to some extent in the Army and society as a whole. I am not arguing that question. I am just asking. It seems to me that both the expense and fighting capability would be better if we could work out that exchange situation.

Let me ask one more final question, very quickly, Mr. Chairman.

STRENGTH OF AMERICAN SECTOR IN NATO

Is it not true that the American sector in NATO is considerably stronger than the other sectors, particularly those manned by the Belgians and the Dutch?

Mr. **Carlucci**. I will let General Smith answer that question.

General **Smith**. You mean in terms of the forces that are there and the defense posture in the area?

Senator **Johnston**. Yes.

General **Smith**. Yes; in our part of Central Europe, the U.S. Forces, both land and air forces, are a strong, cohesive team. In the northern region where there are British, Dutch, and Belgians, deployed forces are not quite as strong as we would like. We are doing what we can through the Supreme Allied Command in Europe, through force proposals and force goals, to have them increase their strength in the region and to develop into a more cohesive framework.

They have made progress but they have to do more.

Senator **Johnston**. If there were going to be an invasion there, it probably would not come through the invasion routes in our sector; it would come in the northern plain, would it not, where the forces are less strong and where the invasion route is much broader?

General **Smith**. I think if we study that, it is not quite as easy a route as some people think, although that certainly is one possibility for an avenue of attack.

In Europe, we believe we have to be prepared for attack along a number of routes. The northern region is one, and it does need to be strengthened.

Senator **Johnston**. Thank you, Mr. Chairman.

Senator **Rudman**. Mr. Carlucci, Mr. West, and General Smith, thank you very much.

I just want to say in closing that I think we all agree with the statement that we are dealing with sovereign countries. They have to be treated as such. Obviously, we don't want to make moves that appear to be in our interest that, in fact, are not. I agree with that. I think most people would.

I think one also has to consider that in dealing with the policies that we are speaking of, we ought to consider the way we are treated in other areas, such as the export-import policies of Japan and toward this sovereign nation. I guess what I am saying, Mr. Carlucci, is that there is a point at which polite conversation might better be implemented by strong, decisive action which shows the will of the American people and, after all, we do represent them, and I find a great deal of discontent on this subject, much more so than you would imagine, from people who are generally unsophisticated about the kinds of questions we are talking about this morning. That is why my concern is expressed here.

Thank you very much.

General Smith, it is good to see you again.

Mr. CARLUCCI. Thank you.

NONDEPARTMENTAL WITNESSES

INSTITUTE FOR FOREIGN POLICY ANALYSIS

STATEMENT OF JEFFREY RECORD, SENIOR FELLOW, INSTITUTE FOR FOREIGN POLICY ANALYSIS

STATEMENT SUMMARY

Senator RUDMAN. The next witness will be Jeffrey Record, Senior Fellow at the Institute for Foreign Policy Analysis.

Mr. Record, you have a statement and that statement will be included in full in the record. To the extent you would like to summarize that statement for us this morning, we will appreciate it. You may proceed.

Mr. RECORD. Thank you very much. Let me summarize the major points of the opening statement.

The first is that I think that most of us can agree that the defense of Europe and the NATO Alliance is the single most important defense commitment we have overseas and that the loss of Western Europe to a Soviet invasion would be certainly catastrophic to the well-being of the United States.

The second point is that with respect to the issue of burden-sharing, I don't think any member of NATO has done enough, and certainly we cannot come to any discussion of burden-sharing with clean hands. We talk a lot about the pipeline. Very little is said about continuing subsidization of the Soviet economy by the United States in the form of grain shipments.

We are somewhat irritated at the refusal of some of our European allies to follow our leadership in the Alliance, yet for the past half decade we have not provided the kind of firm, constant leadership that I think is worth following.

It is precisely because the burden-sharing issue is so complex and we, ourselves, have much to answer for, that I would oppose any attempt by the Congress to attempt to hold U.S. force levels in Europe hostage to some kind of designated standard of European political and military behavior. This does not mean that U.S. force levels in Europe are sacrosanct, that they should never be changed under some circumstances, that we in the United States should refrain from criticizing allied behavior when that behavior merits criticism.

It does mean, however, at least in my judgment, that attempts to punish our allies in the form of troop cuts for doing thinks, or not doing things that we ourselves have been guilty of doing or not doing, I think, can lead really to no good, only to trouble.

RESTRUCTURING OF DEFENSE PRESENCE IN EUROPE

This does not mean that there are no compelling reasons for ultimately redefining our force structure and troop presence in Europe. I am convinced there are at least two major compelling strategic reasons why over the long pull we should consider a major redefinition and restructuring of our force presence in Europe, including in the final analysis a major reduction in the number of our ground troops in Europe.

The first reason is that we are now confronting new demands on our military power, demands which have arisen in the past several years outside the NATO Treaty area, demands that are increasing at a rate much faster than our forces and capabilities are growing, even under the administration's 5-year defense plan, assuming that that were to be fully realized by the Congress. We would be very far short of the forces necessary to carry out the present strategy which, as I understand it, involves a commitment to reinforce Europe simultaneously with deployment in Southwest Asia.

We simply are not going to be in a position, short of a return to conscription, to achieve a major restructuring of the American economy and thus an improvement in the economy and, at the same time, to carry out our commitments abroad. The change in our commitments has, of course, risen in Southwest Asia as a function of the Carter doctrine. There is an inability of existing or planned forces to meet these new commitments, certainly concurrently, as the Rapid Deployment Force is composed almost entirely of units that are, on the one hand, committed to Southwest Asia, but are also, on the other hand, still slated for commitment to Europe and the Far East. Basically, we are trying to do with the same amount of force commitment to Europe and to Southwest Asis at the same time.

The second reason is that, in my judgment, our European allies are very capable of doing far more for their own defense than they are now doing, certainly with respect to the forward conventional defense of the central region of Germany, on the ground.

There is no earthly reason why over the next 10 or 15 years that our allies, certainly those that contribute forces to NATO's central fronts, cannot assume full responsibility for the forward, nonnuclear ground defense of that region. That commitment, that mission, currently soaks up approximately half of the 337,000 U.S. military personnel who are now deployed in Europe. It would lift a major burden in terms of cost and in terms of forces from the United States and allow a reallocation of forces and resources outside the treaty area in places where even today we are lucky if we can put a battalion in the area by the time the crisis is over.

So, while I would oppose attempts to change force levels on the basis of allies that are perceived to be not pulling their military weight in the Alliance, I think the time is long overdue to contemplate making changes in force levels on the basis of what I believe are strategic imperatives—the new demands on our forces in Southwest Asia and, of course, the ability of our European allies to do a lot more than they are now doing.

That summarizes my statement.

[The prepared statement of Mr. Record follows:]

PREPARED STATEMENT OF JEFFREY RECORD
SENIOR FELLOW
INSTITUTE FOR FOREIGN POLICY ANALYSIS

Mr. Chairman, members of the Subcommittee, it is an honor and a privilege to appear before you today, and to discuss NATO and our other overseas military commitments. The topic is a highly important one, and the Subcommittee is to be commended for these timely hearings.

Let me preface my brief remarks by placing them in context. First, I believe that a free and independent Western Europe is vital to the well-being of the United States, and that NATO is our most important alliance. To be sure, the United States could survive conquest of Western Europe by the Soviet Union. The price of survival, however, would be high. The Soviet Union would gain control of the world's largest industrial plant; U.S. trade with Europe would virtually cease; democratic institutions even in our own country probably would be forced to give way to those of a garrison state; and American culture would be denied a critical stimulus. America's future is, in short, inseparable from Europe's future.

Second, any discussion of issues related to burden-sharing within NATO must start with a recognition that no member of the Alliance can come to any such discussion with clean hands. No member of the Alliance has done enough for the common defense--although some have done more than others--and we, no less than our European allies, have much to answer for. Can we be dismayed over our allies' refusal to follow our lead within the Alliance when we ourselves have failed during the past half-decade to provide firm, constant leadership? Can we criticize our allies' investment in the Trans Siberian gas pipeline while we continue to subsidize the most inefficient sector of the Soviet economy? Can we pressure our NATO partners to get tough on the new Polish regime while we do little more than burn candles in windows? Can we condemn the antinuclear movement in Europe while ignoring our own and while engaging in loose talk about limited nuclear war? Can we censure our allies' unwillingness to make the necessary social and economic sacrifices for the common defense while we continue to rely on an all-volunteer military that cannot perform adequately even in peacetime without the helping hand of massive unemployment?

There is no doubt that we spent proportionately more on defense than other members of the Alliance. Our defense expenditure per capita and as a percentage of gross national product is the highest in NATO; and the Reagan Administration's Fiscal Year 1983 Five-Year Defense Plan calls for annual real increases in defense spending dwarfing those of our allies.

This trans-Atlantic disparity in defense expenditure is, however, attributable in no small measure to the fact that we are a superpower with global military obligations, and that we bear--and willingly so--virtually the entire burden strategic and theater nuclear deterrence. Most of our allies have restricted their defense commitments to the NATO Treaty area, and only two possess nuclear forces of their own. In the case of Germany, the locus of most U.S. military forces deployed in Europe, we are dealing with an ally whose active-duty force levels are limited by treaty.

It can moreover be convincingly argued that many of our European allies get more for their money than we do. It is difficult to imagine a weapons design and procurement process more time-consuming, inefficient, and wasteful than our own, and in fact Germany years ago fielded main battle tanks, infantry fighting vehicles, mobile air defense guns, and multiple rocket launchers that are qualitatively comparable or superior to those we are still working on. Even more significant is the disparity in manpower costs. Manpower costs gobble up about half the U.S. defense budget, constraining investment in research and development, procurement, and readiness. In contrast our NATO allies, most of whom rely on conscription, spend proportionately less on recruiting and retaining personnel.

None of this is to suggest that our European military partners cannot and should not do more for the common defense. They can, they should, and they must. It is to point out, however, that we enjoy no moral or political high ground vis a vis our NATO allies with respect to burden-sharing. And it is for this reason that I would strongly oppose any congressional initiative designed to hold present U.S. forces levels in Europe hostage to changes in allied political and military behavior. Attempts to punish our allies for doing or not doing things that we ourselves are doing and not doing will fail precisely because they stink of hypocrisy and because no allied government in the 1980s is going to submit to anything from Washington that smacks of an ultimatum. In this regard I freely confess that my thoughts on this matter have evolved significantly during the past year.

Does this mean that the present size and character of the U.S. military presence in Europe cannot or should not be altered? That we should forever maintain 337,000 soldiers, sailors, and airmen in the European theater for fear of incurring the wrath of our allies? That we should refrain from criticizing the behavior of allies in cases where their behavior merits criticism? Certainly not. I am simply suggesting that abrupt U.S. troop withdrawals from Europe, undertaken for the purpose of punishing allies perceived to be unwilling to pull their military weight in the Alliance, risk the destruction of the Alliance itself. The only beneficiary of a new Mansfield Amendment would be the Soviet Union.

There are other, genuinely compelling arguments for undertaking significant changes in the U.S. military presence in

Europe, including a substantial reduction in the number of American ground troops now deployed in Germany. The first is that we face new demands on our military power outside Europe, demands that are expanding at a pace much faster than our ability to meet them. These new demands derive from our growing dependence on fossil fuels and other critical raw materials in increasingly unstable areas of the world where the United States does not, as in Europe, enjoy politically secure military access ashore and the help of militarily competent local allies and client states.

Present U.S. general purpose force levels were tolerable in an era in which we possessed pronounced nuclear superiority over the Soviet Union and regarded overt Warsaw Pact aggression in Europe as the principal threat to the security of the Free World. That superiority has vanished, and events in Southwest Asia during the past decade have conclusively demonstrated that vital Western security interests can be as readily compromised outside Europe as they can along the inter-German border. Belated recognition of this strategic reality led to the proclamation of the Carter Doctrine, which imposed new and exceedingly difficult obligations on U.S. forces already over-taxed by standing commitments in Europe and the Far East. The gap between resources and responsibilities is evident in the Rapid Deployment Force. Although earmarked exclusively for contingencies in Southwest Asia, the RDF relies almost entirely on air, naval, and ground units that are simultaneously slated for Europe and the Far East. Unless we are prepared to undertake a massive expansion in our military power, we will not be in a position to meet our military obligations in Europe and in the Far East and in Southwest Asia--and certainly not concurrently. Such an expansion would entail a return to conscription, placing the economy on a semi-wartime footing, and annual real increases in defense expenditure far larger and over a much longer period of time than now contemplated by the present Five-Year Defense Plan.

An alternative, of course, would be to restructure our pre-Afghanistan defense commitments with the aim of releasing existing military forces for Southwest Asian contingencies. This brings us to the second argument for undertaking significant alterations in our military presence in Europe: most of our NATO allies, notably those with forces allocated to the forward defense of the Central Region, are capable of assuming far greater responsibilities for that defense than they are now bearing. Indeed, I am persuaded that Germany, Great Britain, Belgium, and the Netherlands can--and ultimately should--assume full responsibility for the conventional forward ground defense of NATO Center. Full allied assumption of that task would release enormous American military resources: over one-half of the 337,000 U.S. military personnel deployed in the European area are ground troops dedicated to the forward conventional defense of Germany.

That our NATO Center allies possess the money and manpower to assume that responsibility is indisputable. Let us look at some comparative numbers. The United States currently devotes 5.9 percent of its GNP to defense, a share slated to rise to over 7 percent in the latter 1980s. In contrast is the 3.7, 3.4, and 3.3 percent allocated, respectively, by Germany, the Netherlands, and Belgium, the three NATO members lying astride the North German Plain, long regarded as the main corridor of a potential Soviet invasion.

We also maintain more active-duty men under arms as percentage of national population than most of our NATO Center allies. Even with the all-volunteer army America's soldier/citizen ratio of 1/107 is considerably better for example, than Germany's 1/125, the Netherlands' 1/138, and Great Britain 1/163. If just Germany, the Netherlands, and Great Britain were to match the U.S. soldier/citizen ratio, NATO would be endowed with over 310,000 additional active-duty military personnel, a number far exceeding the strength of the U.S. Army Europe. Additionally, NATO Europe's substantial national reserve forces, if adequately equipped, could provide at least a partial substitute for active-duty U.S. forces withheld in the United States as reinforcements for Europe. Germany and the Low Countries alone maintain mobilizable ground force reserves totalling over 1,000,000 men, a figure surpassing the active-duty end strength of the whole U.S. Army.

Let me be clear about what I am proposing and what I am not proposing. I am proposing a phased restructuring of the U.S. commitment to Europe's defense, not a termination of that commitment; withdrawals of selected U.S. forces from Europe conducted in small increments over a period of 10-20 years, not an abrupt pullout of all U.S. forces; and a withdrawal program to be undertaken in full consultation with our European allies and a willingness to assist them in adjusting to that program, not a unilateral venture that would further compromise American leadership of the Alliance.

What I am proposing, in effect, is the eventual application of the Guam Doctrine to Europe, whereby our allies would assume full responsibility for their own defense on the ground amidst the continued presence of robust American naval, air, and of course, greater nuclear forces. Indeed, it can be persuasively argued that the Guam Doctrine is far more applicable to Europe today than it ever was in Southeast Asia. Unlike our former clients in Southeast Asia, our European allies possess both the political stability and the economic and military resources to defend themselves on the ground. That it is in their long-term interest to assume that responsibility--thereby permitting the United States to mount a credible defense of Western interests outside Europe--ought to be self-evident in their utter dependence on Persian Gulf oil.

The retention in Europe of existing U.S. naval, tactical air, and theater nuclear forces, to which over 150,000 personnel are assigned, would make it impossible for the Soviet Union to avoid early and heavy combat with Americans in the event of war, especially since the preemptive destruction of NATO air bases and nuclear storage sites is accorded the highest priority by Soviet force planners. Thus the claim, that a withdrawal of U.S. ground forces is tantamount to an abdication of the U.S. commitment to Europe's defense, would be valid only on acceptance of the preposterous assumption that an American president would simply walk away from a situation in which tens of thousands of U.S. military men and their dependents were bing killed or wounded.

Jeffrey Record is a Senior Fellow at the Institute for Foreign Policy Analysis. He was formerly Legislative Assistant for National Security Affairs to Senator Sam Nunn and a Research Associate on the Brookings Institution's Defense Analysis Staff. He is the author of numerous books and articles on military affairs, including Force Reductions in Europe: Starting Over (1980); The Rapid Deployment Force and U.S. Military Intervention in the Persian Gulf (1981); and NATO's Theater Nuclear Force Modernization Program: The Real Issues (1981). He has just completed a draft manuscript, Beyond NATO: New Military Directions for the United States, scheduled for publication in the summer of 1982.

ABILITY OF THE UNITED STATES TO MEET DEFENSE OBLIGATIONS

Senator **Rudman**. Thank you very much, Mr. Record.

I take it from your statement that you believe that what the Defense Department is proposing in terms of ability to meet worldwide responsibilities, such as through the RDF, that if these scenarios develop, in fact, the structures that we are talking about even now will be vastly insufficient to meet those obligations?

Mr. **Record**. That is correct. If you read the Posture Statement, the latest Posture Statement, by Defense Secretary Weinberger, he talks in terms of a desire to be able eventually to reinforce Europe, deploy to Southwest Asia and meet our Far East commitments concurrently. That is simply impossible with present force levels and would be impossible even with those additional forces that will presumably be generated under the 5-year defense plan.

The 82d Airborne Division cannot be in Norway and Saudi Arabia at the same time.

U.S. PERSONNEL NATO REDUCTIONS

Senator **Rudman**. Have you had an opportunity to analyze the recent foreign affairs report urging no current U.S. NATO reduction?

Mr. **Record**. Yes. I have a copy right here. I read it last night.

Senator **Rudman**. Can you respond to that at all?

Mr. **Record**. I think I would certainly share their view against troop withdrawal, certainly an abrupt troop withdrawal dictated by an angry Congress. I don't see that that really leads anywhere.

On the other hand, the report seems to convey the notion that present U.S. force levels are somehow sacrosanct and immutable and everlasting. They do not address strategic questions in great detail in this report. It is there that I think the foundation lies for significant changes in our forces in Europe.

Senator **Rudman**. Senator Johnston?

INCREASES AND DECREASES IN FORCE LEVELS

Senator **Johnston**. Mr. Record, to what extent do you believe our troops in Europe give us influence with NATO countries and stem a tide of increased pacificism of the NATO countries?

Mr. **Record**. I don't think there is really that much of a correlation, certainly on the margin in terms of increases or decreases in force levels. The antinuclear and pacificist movement in Europe has grown remarkably in the last several years, at the very time we have been increasing our forces in Europe.

If you are talking about a presence versus no presence at all, I think we would be in a different ballpark. I don't believe that sending a couple more brigades or taking a couple of brigades out of Europe will have any significant influence on the future and fate of the current antinuclear movement.

Senator **Johnston**. We are not talking about just a brigade here and there; we are talking about a sustained pull-out over a period of 10 to 20 years in consultation with NATO allies, moving them to other more important areas, but nevertheless a pull-out of ground troops and leaving that to them.

I just wonder; it may have a salutary effect. There may be some anti-Americanism that is created by troops on the ground. It was when I was there. Any soldiers that are in someone's country tends to do that, I think; or it may be an opposite effect. I just wonder if you have thought that through?

Mr. RECORD. I think you are probably correct, certainly in terms of a 10- to 15-year steady pull-out of U.S. ground combat forces which in many respects are the most visible in terms of the U.S. presence to the local population. To the extent that theere has been irritation among U.S. troops and local populations, obviously that would decrease if you removed half of the 337,000 troops and sailors that are in the European area today.

On the other hand, what I am really contemplating in this proposal is basically the application of the Guam Doctrine to Europe over a 15-year period in which we would retain our tactical air power and, of course, our naval power, and, of course, our theater nuclear forces in Europe, which total approximately half of that 337,000. This would not be tantamount to a withdrawal from Europe's defense or a termination of the NATO alliance.

A Soviet attack, even in a situation where we had no ground troops, would within the first 3 or 4 days of hostilities involve the death and destruction of thousands of troops in that case.

I think you are right, to the extent that there is a problem of friction. If you pull out half of the U.S. troops that are there, the friction presumably would be reduced by some factor.

Senator JOHNSTON. Thank you, Mr. Chairman.

Senator RUDMAN. Thank you very much, Mr. Record. We appreciate you appearance here this morning.

The next witness is Leonard Sullivan, Jr. Mr. Sullivan is a Washington-based national security consultant with extensive experience in the Defense Department.

Mr. Sullivan, we have your statement. We would appreciate it if you would summarize that for us this morning.

NATIONAL SECURITY CONSULTANT

STATEMENT OF LEONARD SULLIVAN, JR., NATIONAL SECURITY CONSULTANT, WASHINGTON, D.C.

U.S. ROLE IN FREE WORLD DEFENSE

Mr. SULLIVAN. Yes, I would like to do about half of it.

I would like to start out by making clear I have no intentions to embarrass the current administration, nor do I want to denigrate our people in Europe who, I believe, are doing a very good job. I will not suggest any ways to reduce near-term defense outlays.

I have no desire whatsoever to weaken or retreat from our alliance, but we simply cannot cling to a structure of international relationships that have defied reality for well over 20 years. I don't believe the United States has any God-given obligation to cripple its future economy in the name of leadership of the Western World, nor do I see any reason to treat our allies as welfare cases or disabled veterans from a prior war.

The strategies adopted by the current administration, I believe, reflect a realistic view of the increasing threats abroad in the world, but American security capabilities reflect only the sum of the resources applied over the past 20 years or so.

From my experience, there is no question but that that threat is increasing. Out capabilities relative to that threat are depreciating. There is an increasingly serious mismatch between our collective security needs and our existing security capabilities. I see no cheap, easy way out of this dilemma. Through our own nelgect, the correlation of forces, as the Soviets have referred to it, has shifted substantially away from the West. Our defense strategy must shift accordingly.

We can no longer hope to deter the Soviets by declaratory posture, an adversary who during his own period of military inferiority adopted a realistic war-fighting doctrine. The West simply has not bellied up to the real demands of war-fighting at any level—nuclear, chemical, or conventional. The West cannot avoid modernizing its nuclear forces, whether to expand them, freeze them or shrink them. We cannot avoid modernizing and expanding our conventional forces, particularly in the naval and mobility areas, and we cannot avoid increasing our readiness and ability to sustain combat for more than a few desperate weeks.

If the United States tries to implement this strategy all by itself, it will have to steadily and continuously consume at least 9 percent of GNP in TOA, compared to the Reagan plan of 7.5 percent GNP. This would permit a 20-percent increase in some U.S. forces, while doubling readiness and sustainability and redressing a decade of plant and equipment depreciation.

It will require about 7.5 percent of GNP just to sustain our current force levels. If we spend less than that, then I believe we must lower our force levels.

Over the long run we cannot afford to maintain forces too large, too old, or too poorly supported to fight.

If we are unwilling to support these forces properly, then I feel we must find some alternatives to the use of active American forces to satisfy our strategies.

ALTERNATIVES TO USE OF U.S. FORCES

I see three alternatives:

One, we can try to replace our Active Forces with Ready Reserve Forces which, fully modernized, are only about 20 percent as costly.

Two, we can try to rely more on our civil sector wherein lies the real strength, depth, and resilience of the West. If we could pit Western economies against Communist economies, instead of military against military, our future security would be assured for a century.

Third, I say let us even up the defense burden among all who share Western benefits. Our way of life is not a human right; it must be earned. There is no measure that I can find by which to claim that the West is sharing that defense burden equitably.

Many have been taking at least a partial free ride for at least 20 years. There is no comparable example of fraud, waste, and abuse in the defense arena.

I go on in my testimony to show you I would suggest changes in the contributions of each of the major countries. Canada ranks only second to Japan in shirking its responsibilities and can do a great deal more. The United Kingdom is spending enough but probably on the wrong forces. The fact that it is trying to contribute a trivial amount to our strategic forces rather than larger conventional forces, I believe, is wrong.

The West Germans, who boast they can mobilize millions of reservists in a few days, have little or no equipment for them and only a few weeks of combat staying power at best. I believe they should increase their stocks of expendables and harden their borders to increase warning and mobilization time and lessen the requirement for active, onsite allied forces. The Germans could well afford to organize and equip 3 or 4 more active divisions and at least 10 reserve divisions.

It would surely be many times more efficient to rapidly mobilize European reserve forces than to retain U.S. Active Forces at home for the same purpose. Our forces must either join up with vulnerable duplicate pre-positioned equipment or bring it with them across contested air and sea lines into vulnerable overcrowded airports and seaports.

Additionally, I believe the Germans can afford to substantially increase their aid to some of the poorer allies.

France needs to beef up its reserves.

Italy is not spending enough.

Greece and Turkey have enough manpower but they don't have the money to equip them.

Israel and Egypt, at the most threatened eastern end of the Mediterranean, don't provide bases for use by allied forces.

Of course, in the Pacific, Japan's failure to accept more than a token fraction of its security obligation is a disgrace. I, too, believe they should be shamed into paying their way; they should provide total sea and air security for the Sea of Japan, portions of the North Pacific and the East China and Philippine Seas. They should extend security and military guarantees and military assistance to South Korea and offer substantial economic development aid to the People's Republic of China.

I agree with you, Senator Johnston, our future relations with China should be predicated on its recognition of the territorial integrity of South Korea, which would then permit reduced American presence in Northeast Asia.

But security goes beyond military spending. Western countries should contribute far more to their collective security of essential energy needs. Major fiscal efforts to develop fuel substitutes and nuclear waste disposal could add more to Western political and economic security than an equivalent military investment.

Why should Japan not put 2 or 3 percent of its GNP into solving the world's energy problem as well as their own? Its constitution does not forbid a world leadership role in this nonmilitaristic area.

In conclusion, how would these changes in investment and responsibility impact on the American component of a robust Western security strategy? I visualize a major shift from our outmoded past obligations toward a more flexible response to future threats.

We must retain some sort of bilateral nuclear stalemate with the Soviets.

CONVENTIONAL WARFARE COMMITMENTS

On the conventional side, we must move away from defending those who are regionally capable of defending themselves and toward extending security to those regions which are unable but not unwilling to defend themselves.

Over the next decade we would enhance our worldwide rapid deployment force capability and simultaneously reduce our permanent domesticated forces in both NATO and Korea. We would no longer retain Active or Reserve Forces in the United States with a primary role to rapidly reinforce allies who are fully capable of mobilizing their own reserve.

We would reduce our total Active Ground Forces and reconfigure the rest for rapid deployment.

We would evolve slightly larger Naval Forces focused on the projection role, leaving sea control missions to those with contiguous countries and interests.

The effectivness of all U.S. Forces would be enhanced by forward pre-positioning and by establishing redundant staging bases which would be activated only for training in times of crisis and then with significant host support.

Naturally, we would have to increase our readiness and sustainability backed up by an industrial mobilization capability. I believe this involves a basic realignment of international roles and missions. I believe nothing else can assure the security of the West into the next century.

I thank you for letting me read part of my statement.

[The prepared statement of Mr. Sullivan follows:]

PREPARED STATEMENT OF LEONARD SULLIVAN, JR.

NATIONAL SECURITY CONSULTANT

THE REAL LONG-RANGE DEFENSE DILEMMA: BURDEN SHARING

(Mr. Sullivan is a Washington-based national security consultant. He was principal Deputy Director of Defense Research and Engineering in 1972-73, and the Assistant Secretary of Defense (Program Analysis and Evaluation) 1973-76. He joined the Defense Department in 1964 from the Grumman Corporation.)

[This testimony is drawn in part from an article appearing in the ARMED FORCES JOURNAL INTERNATIONAL in October, 1981.]

Thank you, Mr. Chairman. Good morning Gentlemen. I am delighted to have a chance to contribute to a serious debate on our security needs. I have been involved with national defense all my adult life--including 12 years in the Pentagon.

I do not intend to embarrass the present Administration, or to denigrate our military forces. I will not suggest any ways to reduce near-term defense outlays. I do not wish to weaken or retreat from our alliances. But we simply cannot cling to a structure of international relationships that have defied reality for well over 20 years. The United States has no god-given obligation to cripple its future economy in the name of leadership of the Western World. Nor do I see any reason to treat our allies as welfare cases or disabled veterans from a prior war.

The strategies adopted by the current administration reflect a realistic view of the increasing threats abroad in the world. But American security capabilities only reflect the sum of the resources applied over the past 20 years or so. The threat is increasing. Our capabilities relative to that threat are depreciating. There is an increasingly serious mismatch between our collective security needs and our existing security capabilities. I see no cheap, easy way out of this dilemma. Through our own neglect, the correlation of forces has shifted substantially away from the West. Our defense strategy must shift accordingly.

1. We have lost our ability to deter war by simple nuclear declaratory policy. We have reached a nuclear balance which represents minimal, neutral, stability and the maximum opportunity for miscalculation. We have also lost our declaratory defense against chemical and biological warfare.

2. We have counted on nuclear superiority to compensate for a shortage of conventional forces--and let that unfavorable asymmetry grow. We must now improve our conventional forces, but they will lack credibility if we acquiesce to intermediate or intercontinental nuclear inferiority.

3. The Soviets and their allies and clients have grown from a NATO regional threat to a worldwide threat, with bases, force projection capabilities, and voluntary allies beyond the Eurasian continent. We must now be prepared to fight in several theaters at once, while simultaneously neutralizing potential threats closer to home. We must be able to threaten our adversaries at their points of weakness. And we must remain forward deployed wherever that is politically feasible, and postured for rapid deployment to areas where a peacetime presence is deemed counterproductive.

4. Above all, we can no longer hope to deter by declaratory posture alone an adversary who, during his period of military inferiority, adopted a realistic warfighting doctrine. The West simply has not bellied up to the real demands of warfighting at any level: nuclear, chemical, or conventional. The West cannot avoid modernizing its nuclear forces whether we expand them, freeze them, or shrink them. It cannot avoid modernizing and expanding its conventional forces--particularly naval and mobility forces. It cannot avoid increasing readiness and the ability to sustain combat for more than a few desparate weeks.

If the United States tries to implement this strategy all by itself, it will have to steadily and continuously consume at least

9 percent in GNP in TOA--compared to Reagan's plan of about 7.5 percent. This would permit a 20 percent increase in some U.S. forces, while doubling readiness and sustainability, and redressing a decade of plant and equipment depreciation. It will require about 7.5 percent of GNP just to sustain our current force levels. If we spend less than that, then we must lower our force levels. Over the long run, we cannot afford to maintain forces too large, too old, or too poorly supported to fight.

Obviously national security is not generated solely by spending for military forces. Strong, productive economies; political will; foreign aid and military assistance; energy independence and resource stockpiles; regional security cooperatives and forward bases; reserve and industrial mobilization potential; all of these contribute to the total correlation of forces. But defense forces are by far the biggest single expense. If we are unwilling to support them properly, then we must find alternatives to using active American force levels to satisfy our strategies. I see three possible options:

1) We can try to replace active forces with ready reserve forces, which fully modernized are only about 25 percent as costly.

2) We can try to rely more on our own civil sector, wherein lies the real strength, depth, and resilience of the West. If we could pit Western economies against communist economies instead of military against military, our future security would be assured for a century!

3) Let's even up the defense burden among all who share Western benefits. Our way of life is not a human right: it must be earned.

There is no measure by which to claim that the West is sharing its defense burden equitably. Many have been taking a partially free ride for at least 20 years. There is no comparable example of fraud, waste, and abuse in the defense arena. The following table shows the very simplest comparisons of defense outlays by Japan, NATO-less-the-U.S., and the U.S. Column 1 shows the 1980 status. Column 2 shows the current Reagan plan coupled with business-as-usual by our allies. Column 3 produces the same total spending but increases Japan's share by .5 percent of GNP and the non-U.S. NATO share by 1 percent of GNP. By so doing, the U.S. share need not increase at all. Columns 4 and 5 repeat this comparison but at the level of 8.0 percent U.S. GNP spending as I believe is required. If this is reapportioned to 2 percent for Japan and 5 percent for non-U.S. NATO, then again the U.S. share--still sufficiently larger than the others to continue to buy U.S. leadership--need not exceed 6 percent.

1980 GNP & Defense Share			Reagan Plan		Higher Estimate	
		1	2	3	4	5
Japan	(1100)	1.0% *(11)*	1.0% *(11)*	1.5% *(16)*	1.0% *(11)*	2.0% *(22)*
non-U.S. NATO	(3210)	3.5% *(113)*	3.5% *(113)*	4.5% *(144)*	3.5% *(113)*	5.0% *(160)*
U.S.	(2570)	5.6% *(144)*	7.0% *(180)*	5.6% *(144)*	8.0% *(210)*	6.0% *(152)*

() = defense outlays in billions of FY80 dollars

Let me now rush in where prudent statemen would fear to tread. On a purely hypothetical basis, let me suggest how to reallocate the collective defense burden to present a more robust total balance of forces:

CANADA ranks second only to Japan in shirking its Western security responsibilities. Canada should triple its active ground forces and create useful reserves as well. It could take on major additional commitments to reinforce NATO's northern flank, and to protect both North Atlantic and North Pacific air and sea lanes with larger naval and air forces. Canada could also well afford more economic assistance to the Third World and greater efforts to solve the worldwide energy problem.

The UNITED KINGDOM appears to spend its share but probably on the wrong forces. Instead of concentrating so heavily on its trivial augmentation to the West's nuclear forces, it would do better to increase its conventional active and reserve force levels. Its recent decision to invest in TRIDENT, while reducing its conventional naval forces, diminishes its real security contributions both within and beyond the NATO boundaries.

The NETHERLANDS, BELGIUM, DENMARK, and NORWAY seem to be devoting about enough manpower, but too little money to their forces. They need to equip their active forces better, and to organize and equip more reserve units. Moreover, they all have valuable civil assets and facilities that can help sustain a European conflict. They should make sure they can mobilize and defend all their port and transport assets in times of crisis.

The WEST GERMANS, who boast they can mobilize millions of reservists in a few days, have little or no equipment for them, and only a few weeks of combat staying power at best. They should increase stocks of expendables, and harden their borders to increase warning (and mobilization) time and lessen the requirement for active on-site allied forces. They could well afford to organize and equip two to three more active divisions and at least ten reserve divisions. It would surely be many times more efficient to rapidly mobilize European reserve forces than to retain active U.S. forces at home for the same purpose. Our forces must either join up with vulnerable duplicate, pre-positioned U.S. equipment or bring it with them across contested air and sea lanes into vulnerable, over-crowded air and seaports. Additionally, the Germans should substantially increase military aid to poorer NATO allies, primarily Greece and Turkey.

FRANCE comes closer than most to carrying its share of the West's security burden. However, its aloofness from NATO team play detracts significantly from NATO's common strength--as does SWISS neutrality. France needs to better equip its reserves, extend its combat sustainability, expand its foreign military assistance, and collaborate more effectively with friendly security forces beyond the NATO area.

ITALY is behind in both spending and military manpower. Additions to NATO's Mediterranean naval strength with aircraft, ships, and submarines, would be extremely useful. Italy and France should both help SPAIN and PORTUGAL modernize their forces.

GREECE and TURKEY appear to be doing their share in funding and active manpower, though perhaps only to fight each other. Both countries, with their relatively low per capita wealth, need assistance in arming their relatively large--and tough--ground forces. Including ISRAEL and EGYPT, well over half of the Mediterannean coastline, and the three entrances to it, are in friendly hands. It is inconceivable that the U.S. should now be building--or permanently deploying--nuclear navies, to secure it, instead of using friendly land-based assets.

In the Pacific, JAPAN's failure to accept more than a token fraction of its security obligations to the West is a disgrace.

Japan should be shamed into paying its own way. It should provide total sea and air security for the Sea of Japan, portions of the North Pacific, and the East China and Philippine Seas. It should extend security guarantees and military assistance to SOUTH KOREA, and offer extensive economic development aid to the People's Republic of China.

Moreover, our future relations with CHINA should be predicated on its recognition of the territorial integrity of SOUTH KOREA, which could then permit a reduced permanent American presence in Northeast Asia.

Finally, neither the PHILIPPINES, AUSTRALIA, nor NEW ZEALAND carry a full share of the Western security burden. Greater contributions should be expected in assuring regional stability and sea control throughout Southeast Asia. Political and economic collaboration among ASEAN nations should eventually include a security component. Moreover, all these West-aligned countries could provide facilities, anchorages, supply points and home ports by which to substantially magnify the operational potential of American security forces in and beyond the Pacific.

Beyond military spending, Western countries should contribute far more to the security of essential energy needs. Major fiscal efforts to develop fuel substitutes and nuclear waste disposal could add more to Western political and economic security than an equivalent military investment. Why shouldn't Japan put 2 or 3 percent of its GNP into reducing the world's energy problems--as well as its own? Its constitution does not forbid a major world leadership role in this non-militaristic area.

There are other major civil assets which can contribute to Western security. For instance, commercial air and sea transports can be used to concentrate military force in a threatened area. American reinforcements need not deploy in American transports. A corrolary to the Guam doctrine might declare that we will help any friend or ally who will come and get us. Certainly, the U.S. need not provide all the sealift and airlift to support its trans-Atlantic and transPacific treaty obligations--when those allies can provide the needed assets.

How would these changes in investment and responsibility impact on the American component of a robust Western security strategy? I visualize a major shift from our outmoded past obligations towards a more flexible response to future threats. We must retain some sort of bilateral nuclear stalemate with the Soviets. On the conventional side, we must move away from defending those who are regionally capable of defending themselves, and towards extending security to those regions which are unable--but not unwilling--to defend themselves. Over the next decade, we would enhance our worldwide rapid deployment force capabilities, and simultaneously reduce our permanent, domesticated forces both in NATO and Northeast Asia. We would no longer retain active or reserve forces in the U.S. with a primary role to rapidly reinforce allies fully capable of mobilizing their own reserves. We would reduce our total active ground forces and reconfigure the rest for rapid deployment. We would evolve slightly larger naval forces focused on the worldwide force projection role, leaving the permanent sea control missions to those with contiguous countries and interests. The effectiveness of all U.S. forces would be enhanced by forward prepositioning, and by established, redundant, staging bases which would be activated only for training or at times of crisis--and then with significant host nation support. These reconfigured conventional forces would maintain high readiness and substantial combat sustainability, backed up by a meaningful industrial mobilization capability.

In conclusion, Gentlemen, my vision of revamped burden sharing is not simply a matter of divvying up the bill differently. It would involve a basic realignment of international roles and missions. Nothing less than this can assure the security of the West into the next century, without imposing crippling and inefficient U.S. spending.

Thank you for listening, and I am available to try to answer your questions.

NATO TROOP STRENGTH INCREASE

Senator **Stevens** [presiding]. I certainly like your statement that we must move away from defending those who are regionally capable of defending themselves and extending security to those regions who are unable but not unwilling to defend themselves. That would be a new concept, and welcome as far as this Senator is concerned.

In terms of numbers, what do you think about this level of NATO troop strength and its increase? Do you view that it is necessary, the increase since 1975 of basically 58,000 troops, while they have been reducing theirs by almost the same amount, 56,000?

Mr. **Sullivan**. Senator, I have no basis on which to corroborate or disagree with your numbers.

Senator **Stevens**. They were provided to us by the Department of Defense. If somebody wants to argue with them, it is all right with me.

Mr. **Sullivan**. I choose not to argue, because I know no better numbers.

I see no reason at this time why we should be increasing our contribution in any form toward the NATO theater. I believe, as I think you do, that it sends the wrong signal to be increasing our troops there when they are apparently reducing their own. Even if these are trivial numbers, I think the signal is important and the signal is the reverse of the one we want to be sending.

Senator **Stevens**. Senator Mansfield wanted to reduce the troop strength by 50,000 at a time when we had roughly 300,000. I don't know what he would say now if he were in the Senate. When we look at these figures, which each year are going up—it is sort of a creeping increase—it does not look like a policy decision of any type to increase strength; it just looks like almost a Peter principle working, that everbody over there needs a new assistant, so the strength keeps going up.

Mr. **Sullivan**. I guess I don't know whether the strength is going up or whether the support is going up. I don't think they have sent over any new units with new flags. I believe they have more people with the units they have there.

Senator **Stevens**. That is what I am saying. The one in Britain seems to be now.

Mr. **Sullivan**. The F-111's.

Senator **Stevens**. A-10 squadrons.

Mr. **Sullivan**. Yes; that is new.

JAPANESE DEFENSE EFFORT

Senator **Stevens**. One last question. In terms of the Japanese effort, this is an interesting suggestion you make, about their being involved in energy. We were prepared to take this committee over there last fall but we had to stay here because of the last session in the last part of the year. We wanted to encourage them, if they weren't going to increase their defense costs, to increase their support of worldwide foreign aid and military aid costs.

You are saying the same thing. If they don't want to take a military burden on their GNP, they ought to take some multinational burden on their GNP?

Mr. **Sullivan**. Yes, indeed, that contributes to the security of the West.

I have to say I admire the Soviets and their term, "correlation of forces." They fully understand that the balance between the two societies is not dependent on the number of gun barrels; they understand it has to do with economies and political will and strength of alliances and a great many things that contribute to the overall balance. This is where we are losing out on the nonmilitary side.

Senator **Stevens**. I happen to agree. I think that NATO would be much better off with a firm industrial base in the United States without these large deficits and without inflation that they would with increasing numbers of troops and a U.S. economy that is in a near-depression state, unemployment at record highs. I don't see how a nation in our circumstances today could meet any ongoing commitment to expand our production or expand our support for Western Europe with the economic situation we are in today.

If we are right, that part of the burden on our economy is increasing; support that is actually deployed to Europe is self-defeating.

CURRENT FORCE LEVEL MAINTENANCE

Mr. **Sullivan**. I would like to comment only in the following way. I would draw to your attention that just maintaining the force levels we have now, I am sure, is going to cost 7.5 to 8 percent GNP. I mean that on a continuing, indefinite basis. If we try to increase our force levels in selective areas, it is going to go back up to 9 percent. Why 9 percent? Because that is where it was during the late fifties and early sixties when, in fact, we were putting forward a robust resistance to what we say as Communist expansion starting at that time.

The economy in this country is forever going to be on the rocks unless we can accommodate that higher percent of defense spending. Moving 58,000 people from Europe would make little difference. Taking a nuclear engine out of one of the carriers is not going to make any significant difference.

We have to establish some sort of long-range plan where we understand what our permanent commitment to our defense has to be and then try to live up to that.

Senator **Stevens**. I agree. Your figures are correct so far as we know. We did that at the time when we had a very viable economy that was capable not only in the military field to do what you are talking about, but also we were carrying out the Marshall Plan and building up the economies of the world at the same time. That is not quite the same when we face the competition flooding us from one direction and industrial products flooding us from Western Germany and the European Community. I don't see how it can continue on an economic basis.

Mr. **Sullivan**. I think it is interesting that our defense expenditures for NATO exceed the sum total of our trade with NATO every year. We are actually paying more to defend that area of the world than the total gross balance of imports and exports from them. We are the only NATO member by a factor of five or six that is in that position.

Senator **Stevens**. That is a very interesting figure.

Senator Johnston?

Senator **Johnston**. Thank you, Mr. Chairman.

TIME LIMIT ON U.S. GROUND FORCES IN NATO

Mr. Sullivan, do you agree with Mr. Record that this ought to be over a period of 10 to 20 years, this pulling back from our ground role in Europe?

Mr. **Sullivan**. Well, I know the Congress has trouble seeing beyond 4 or 5 years. As a planner, I have trouble seeing ahead more than 10 years. I believe 20 years exceeds the limits of political credibility of any given generation.

You say it is going to take another generation to accomplish this objective: I would put an upper limit of 10 years.

Senator **Johnston**. You would begin it fairly rapidly and announce the policy rather clearly at this time?

Mr. **Sullivan**. Yes, sir. But it has to be done by a very strong majority of the Congress and be something that can't change after the next bielection.

Senator **Johnston**. You agree, it should not be something where we criticize our allies and seek to denigrate their policies but, rather, something we are doing in our own interest and we are going to do it anyway, regardless of what they do?

Mr. **Sullivan**. Precisely. I agree, it should not be punitive. I do believe if we are going to lead we have to take a leading position. We cannot lead by wondering what their newspapers are going to say the following morning.

Senator **Johnston**. Mr. Carlucci said they are sovereign countries. So saying, he is suggesting all our desires will not be accommodated to by their action. What happens if we say we are pulling out this unit or that unit as part of a long, sustained effort, and they say, "Well, this is the demise of NATO; it shows that the Americans are no longer willing to do their share of NATO, so we are just going to have a better ostpolitik," and they just don't do their share; they don't do more; they, in fact, do less?

What do we then do?

Mr. **Sullivan**. I think we live with that. We have to get to the point where we bring our commitment of resources and our strategy into line. The worst thing we can do is promise the world that we are going to be able to carry out some strategy which, in fact, we cannot, either alone or with our friends.

You know, vital interests are only vital if you can afford them. If you can't afford them, they suddenly are no longer vital.

I believe it would be a tremendous mistake to underestimate the resilience and strength of our allies. I don't think any of them wish to become Finlandized, but I am sure they are not going to take up a larger share of burden just for the fun of it.

I would have no personal qualms that I was going to lose any of those countries by saying, over the next 10 years, "You have to do it for yourselves."

SOVIET VERSUS UNITED STATES STRENGTHS

Senator **Johnston**. One final question: Was the President correct when he said the Soviets were stronger than we were? Just in a few words.

Mr. **Sullivan**. I believe from the standpoint of the overall correlation of military forces that the Soviets have moved into the lead.

Senator **Johnston**. Strategically?

Mr. **Sullivan**. I think it is across the board, sir. When you talk about the correlation of forces, you don't divide it into any of the particular force levels. They have enormous military strength, still very close alliances, and they appear to have the will to continue to pursue their defense policies.

I have considerable doubt as to the level of our will.

STRATEGIC WEAPONS

Senator **Johnston**. On strategic weapons, if you were to divide those off by themselves, what would your answer be?

Mr. **Sullivan**. You can't divide them off by themselves.

Senator **Johnston**. I think the President did.

Mr. **Sullivan**. He did; he was trying to make the point on the basis of warheads or something like that. I believe that is rather dangerous.

All I know is that the balance is tenuous enough so that I believe the opportunities for miscalculation are enormous.

I think stability is lacking in that environment.

Senator **Johnston**. Thank you, Mr. Chairman.

Senator **Stevens**. Just one last thing and I do apologize to you because I was not able to stay the whole time.

Some people are implying that my comments would lead to issolation. You are not talking about isolation, are you?

Mr. **Sullivan**. No, sir.

Senator **Stevens**. You are talking about redefinement of commitments abroad and allocation of our capability to meet those commitments, whether the troops or fleets or planes will have to be assigned abroad or here; is that correct?

Mr. **Sullivan**. We have to plug the dikes where other thumbs are not available. If the European and Japanese thumbs are good enough, let us use them.

Senator **Stevens**. We ought to be plugging dikes where people want to have them plugged.

Mr. **Sullivan**. Where the West needs to have them plugged. I don't think it is totally voluntary around the world.

Senator **Stevens**. You made an interesting statement about people who are willing to, but are not able to, defend themselves.

Mr. **Sullivan**. Yes.

Senator **Stevens**. Basically, isn't that the criterion throughout this whole comment of realining our force structure to meet our needs abroad?

Mr. **Sullivan**. Yes. I am not suggesting we impress any other countries against their will, but I would like to catch some of them before governments change.

Senator **Stevens**. I agree with that.

Thank you very much. We appreciate your taking the time to be with us.

Mr. **Sullivan**. Thank you, Mr. Chairman.

Senator **Stevens**. Admiral Davies?

Former Assistant Director, Arms Control Agency

STATEMENT OF REAR ADMIRAL THOMAS D. DAVIES, USN (RETIRED), FORMER ASSISTANT DIRECTOR, ARMS CONTROL AGENCY

COMMITMENT ON NAVAL FORCES

Admiral **Davies**. Mr. Chairman and members of the subcommittee, I am here to talk a little bit about naval forces.

In the case of our forward commitments, our naval forces are a little different than the Army and other forces we have been talking about, in the sense that they are rotated forward and back somewhat in the way that has been suggested for the Army by Senator **Johnston**.

The costs for the naval forces are really in two sectors: The first is the cost of the rotation which, it turns out, is largely the cost of operation of the ships; but is also has a very severe personnel penalty involved. The Navy has been fighting its retention problem for many, many years and a great deal of the retention problem comes from the continuous long deployments and family separations. That is a cost that reflects itself in the numbers of people that we have to keep in the Navy in order to have the retention to man the Navy. It is a rather complex subject which I would not propose to get into any further, except to say that.

But I do want to talk about some of the long-range as well as some short-range things, about the cost of the ships themselves, the operating costs, and the ships.

LONG-RANGE CAUSES OF COST INCREASES

I have two short-range points that I would like to discuss, but because of the importance of the long-range ones I would like to mention three long-range causes that have been at work, in my opinion, and will continue to work to increase costs unless something is done about them.

The first one is the numerical limitation on carriers.

While this limitation was designed to limit costs of operation, I believe it has had exactly the opposite effect; it has not limited new construction and it certainly has motivated designers to produce the biggest and the best.

The motivation is very simple. If we have only 13 carriers or only 12 or only 15, obviously the national defense demands that they be the 13 best and biggest that we can get. That view is not just that of the ship designers, it is that of the people in the Pentagon and I think even of the people in the Congress, in making their decisions.

The second underlying force in the naval cost is the design decision processes that contemplate a sort of worst case, an unlimited set of targets. That has allowed a principle of economics called the economy of scale to run unlimited. As long as you feel that you are increasing the capability directly by adding airplanes to a carrier inventory, for example, you will find that the cost of so doing, that is, the fraction of the total that is added to the hull and the support for those airplanes, is always less from the fraction of the number of airplanes you have added.

So you always find yourself in a position where on the margin, the economic demand that you make it bigger so, we do.

Again, this decision syndrome goes through not just the people on the drawing boards but everybody in the chain of decision, up through and including the Congress. I am sure you have been told a number of times that the economies of scale drive us to very large and expensive ships.

Finally, the third cost is that resulting from modeling and analysis, the systems analysis group that is used to evaluate ships. This is largely in the DOD and these methods and the people that apply them simply do not allow adequate provision for consideration of maneuverability, flexibility, fungibility—which was mentioned by the Deputy Secretary, tactics and other vitally important military considerations.

On the other hand, cost and size and numbers are all quantifiable numbers which in the lexicon of systems analysis simply drive everything. When you say, "but that is going to be inflexible, it is too rigid, it can't be subdivided," there is no way to put those into the quantifiable terms that are used in systems analysis. As a result, we find ourselves driven into a position of what has been called attrition warfare, which I explain a bit more in my prepared statement, but the net result is an inordinate focusing on defense.

We add defensive system after defensive system after defensive system, and these are all costly and they drive the size of the ship up and they end up preparing us for what is called attrition warfare and we simply completely eliminate any discussion or consideration of the more important parts of warfare, which are the tactics, manuevers and movement that take place before actual engagement.

So much for those three. I wanted to mention those because I don't think they have ever been discussed in public before. I think they are important and I think they have driven us to expensive naval vessels, and I think they will continue to do it, and in a few years you can look for carrier tonnages exceeding 100,000 tons instead of being just under it as it is now.

There is no limit to the size of ships, as you have seen from the economics of scale working on tankers which have gotten up to 500,000 tons.

I might add that as the OPEC oil problems arose you also found those 500,000 ton tankers lying in the shipyards for sale for almost anything, simply because they were not fungible, they were no flexible. So much for that.

NAVAL DEPLOYMENTS

I would like to talk to the near term now, and in the near term to try to reduce the cost of naval deployments it seems to me there are really only two possibilities, the first one being more forward home-porting.

The Navy has experimented on this for some time. Up to 1975 and 1976 we were home-porting in Greece and we intended to home-port a carrier at Magar there. This became a casualty of the politics that were going on in Greece at the time and we left. So we do not have a carrier, and I don't think there is much of chance of deploying one, in the Mediterranean at the moment, but we do have one home-ported in Japan.

The Japanese ambient, in which we have put dependent families and so on, is a very satisfactory one and that is a pleasant tour of duty. I think that sort of home-porting where you can guarantee the ambient for the families does solve a lot of the family separation problems. I think it is something in which the Navy should be encouraged. I might add, they are still contemplating this and working on it.

Finally, the ability of naval forces to provide presence in more areas with each ship is not being used fully. The fact that you can move the ships around and move in and out of the Mediterranean or move from the Mediterranean into the Middle East is not being done.

We have a very fixed pattern of deployment, a fixed pattern of liberty ports, that our ships go into and while that has been shaken up a bit by the Indian Ocean deployments, there is rigidity that, in my opinion, goes back again to the numerical limitation on carriers.

With a numerical limitation, there is a strong desire on the part of the Defense Department to maintain the "hardness" of the requirement. If the Navy moves around, doesn't appear on schedule and one day is used in one area and another day in a different area, it is hard to say that we have a "firm" requirement of two or more deployed ships, whatever it is.

So, that a rigidity is going to be there and I believe it will be a problem to try to change the fixed pattern of deployment, although in the case of the Indian Ocean crises we did.

NAVAL CARRIER FLEXIBILITY

There is another aspect of it that is worth mentioning; that is, the fact that as we have gone to our very much larger carriers with larger air groups on board, we are in fact deploying much more military power to the Western Pacific or the Mediterranean than we used to; that is, a Nimitz-class carrier has an effectiveness capability that is considerably greater than a Midway- or CV-9-class of the earlier days. So, we are increasing our deployment and that is one reason our costs are going up, but we are increasing our capability, so it is probably worth looking at the idea of deploying less than two full carriers full time, for example, in a given location, but, rather, to spread them out, perhaps have periods of time when there is less than two carriers, say one carrier in a given area, and to try to increase the amount of coverage we get per ship we have invested . . . commensurate with our increased costs.

In the case of almost every Navy ship it takes at least two and sometimes three ships back in CONUS, in the United States, to support a forward deployment that is one of our typical long deployments that may run as long as a year or from 9 months to a year.

The reasons are manifold. There is the matter of training. It is difficult to get training when deployed. You have to have your training back in the States.

But there is another reason, and that is the personnel problem of retention. As I say, all of this simply drives our people to leave the service. At a very critical time when they have been trained and are ready to take their place in the rated man or officer pyramid, we find them leaving. As a consequence, the business of deploying these forces is costly in both ways.

Mr. Chairman, that completes the formal points that I wanted to make. I will be glad to try to answer questions from the subcommittee.

[The prepared statement of Admiral Davies follows:]

PREPARED STATEMENT OF REAR ADM. THOMAS D. DAVIES, USN (RET.)

FORMER ASSISTANT DIRECTOR, ARMS CONTROL AGENCY

Mr. Chairman and members of the subcommittee, I am pleased to have this opportunity to share with you some of the thoughts on reducing costs that I have had as the result of many years of experience in the Navy--at sea and ashore. I hope that you will find them useful in your efforts to relate U.S. overseas military commitments and consequent costs in a more rational and economical way.

My experience has included duty at sea as a line officer, squadron duty as a naval aviator, and a number of years in technical and logistics assignments as an aeronautical engineer. I have had command at sea and ashore and served in both the Atlantic and Pacific fleets. My final sea duty was as commander of the Carrier Division 20, and my last shore duty was as Chief of Naval Development. I acquired substantial experience in the international arena while assistant director of the Arms Control Agency.

The overseas commitments of the United States that have been assigned to the Navy have accumulated over the years to an impressive list of demands. They are met by the maintenance of the forward-deployed fleets in the Mediterranean and Western Pacific. In recent years, deployments to the Indian Ocean have also been required. The Navy has always been plagued with many problems that result from the long deployments of these ships. One of the most important and costly is the retention of personnel--both enlisted and officer. On a number of occasions, the Navy has tried alternative concepts--sometimes with favorable results, sometimes not.

One of the longer-range changes was that of home-porting ships overseas. This reduced lost time during transoceanic transits incident to rotation, and having families in an attractive overseas home-port greatly reduced family separations--a major source of nonretention. The cost of our overseas commitments have thus been reduced. The development of this idea had a number of problems, however, and with our departure from Greece in 1976-76, the opportunity to home-port a carrier in the Mediterranean seems to have vanished. We do have one carrier now home-ported in Japan, and there are a number of escort vessels with existing or planned overseas home-ports.

Today I believe it would be useful to examine some of the more basic and longer-term causes of the high cost of naval forces, with a view to examining possible cures or mitigating measures.

The first cause to be considered is the existence of a rigid limitation on the number of carriers and by extrapolation, the number of escorts associated therewith. This limitation seems to be aimed at reducing operating and maintenance costs, inasmuch as the number could be expanded by simply not mothballing an old carrier when a new one is commissioned. It appears to have imposed no real constraint on construction, however. From the standpoint of national defense, if we are only to have 13 carriers, they should be the most capable ones that we can get. This has produced a logical motivation towards the biggest, best, and most expensive carrier that can be constructed.

Another effect has to be an apparent rigidity in requirements for deployed carriers, which ensures that the numerical limitation is never reduced. Thus, Mediterranean carriers tend to stay in the Mediterranean rather than moving to other European or Near-Eastern waters. Such movement would tend to downgrade a requirement for two there at all times. Consequently, mobility, a great virtue of naval forces, is not fully exploited.

Second, the principle of economy of scale is being applied in a questionable way in the design decision process. If it is true that adding airplanes to the air wing adds to the ship's usefulness and capability in the identical proportion, then the economy of scale dictates that we do it inasmuch as the support cost increment added to the ship becomes smaller with each plane added, and as a result, economy is served by designing larger carriers. There are several questions, however, that are allowed to remain unanswered. First, is the actual increase in combat utility proportional to the added aircraft? Are there enough targets within the aircraft strike radius to make all of the aircraft productive--targets which represent the preponderance of situations they will face? Second, does the loss or absence of such a ship with its large load of aircraft from the force represent an acceptable reduction in capability to fulfill overseas commitments? These questions and others are, of course, all rendered moot by the numerical limitation on numbers of carriers discussed first above.

A third and subtle source of high costs is the posture of defensive or "attrition" warfare that has been thrust upon the Navy in the last few decades by the impact of the modern "decision process." Since 1960, the methods of Systems Analysis have become the sine qua non of DoD and Navy decision making. An unfortunate characteristic of the practioners of this discipline is their inability to deal with some of the most important of military characteristics, such as flexibility, fungibility, maneuvers, surprise, deception, etc., which have been largely excluded from the decision process. The result has been a pre-eminence of defensive or "attrition war" thinking in the design and utilization of our weapons and ships.

I should say a word or two in explanation of what I mean by attrition warfare. Historically, the antecedent scenario that resulted in an actual battle or exchange of fire has been the most important factor in determining the outcome. The maneuver phase in which surprise, coordination, and other unquantified elements of war play their roles is usually more important than the relative numbers of forces in opposition. In attrition warfare, we bypass the maneuver phase and alert the enemy to our location and intent initially. Thereafter "they fire at our ships and we fire at their bullets"--a losing situation, and consequently a concept that demands ever more defenses or defensive forces. There are parallels in land and air warfare with similar results. Yet all of our engagement analysis tends to be of attrition warfare in which our force is "slugging it out" with an enemy who seems to always be able to carry out coordinated attacks with his missiles--which are the only thing we see in most "scenarios."

The result of this is to be seen in many areas of weapons design and ship design--the large proportion of defensive and special-purpose aircraft on today's aircraft carriers, the large number of defensive escort vessels assigned to the carriers, the total reliance on defenses instead of tactics in today's naval doctrine and training.

Nowhere in the present structure of defense management does there appear to be a forum for adequate consideration of the tactics of maneuver warfare.

There are other causes of high cost of naval forces, such as the impact of a rapidly-changing high technology. Our weapons tend to be fewer, more complicated, and less reliable. This and related matters have been the subject of much discussion in the press and elsewhere so I will not dwell on them at this time--although I will be glad to answer questions in that area. I believe, however, that the three long-term causes that I have described have had very little public scrutiny and are in many ways the most important of all.

The obvious response is: "what can we do about these problems?" Answering that is not easy, but I believe that answers can be worked out if the issues are addressed in the appropriate arenas.

The matter of the numerical limitation is one of long standing and has been woven into the fabric of DoD management for decades. It has useful features that will make it difficult to change. Nonetheless, I believe that its net effect has been to greatly increase the cost of naval forces and probably in the long run to decrease their effectiveness. It may be that a tonnage limitation would avoid some of the undesirable effects, but even that requires a probing look to see its end result.

The economy of scale is simply an economic principle and will continue to be operative. Our objective should be to ensure that its application gives consideration to the other factors that I mentioned, and that they are not rendered moot by the numerical limit. This suggests studies of ways to give such characteristics as "flexibility" the same clout that numbers have in today's analysis.

Consideration of maneuver and tactics in warfare analysis is closely related to the above discussion. However, a "cure" might be the establishment of a group specifically charged with this responsibility somewhere within the service structure. This capability is obviously available within the Services and not within the DoD.

If the overseas home-porting of some of the ships of our forward deployed fleets could be encouraged, that would help reduce costs in the long run. Each ship deployed on a rotational basis has about two others assigned to a continental U.S. fleet as rotational support. Overseas home-porting will not entirely eliminate this support by any means, but will reduce the requirements measurably. That is, a given number of ships will be able to generate an increased number of forward deployed ships on a continuing basis. Of course, the requirements of "surge" in early stages of a war need to be considered.

Another way of getting more deployed "presence" from a given number of ships is to cover a larger number of areas with them while they are deployed, than is currently done. This would require moving them beyond what has now become a set pattern of port visits.

Finally, the effect of having larger numbers of smaller carriers would reduce the proportion of the carrier force deployed and thereby reduce costs substantially.

This concludes my prepared statement and I am ready to answer any questions which the members feel will be helpful.

COST OF CARRIER BATTLE GROUPS

Senator STEVENS. Admiral, we have done some studies on the cost of the new carrier battle groups. I am informed that the cost of one carrier and associated air wing represents now in current dollars $6.2 billion in total procurement cost, an annual operating cost of $340 million.

Are you suggesting that we ought to review this kind of cost, or that we ought to find some way to use carrier groups of this type in a more flexible manner so that it can have a presence in more than one area?

Admiral DAVIES. I think my suggestion is both, Mr. Chairman; first, the latter part, that is, let us use a more flexible pattern so that that ship will pull its weight, so to speak, in the sense that it now has a much greater capability, along with that cost, and we are getting return on it. But in the long haul we need to look at the size of the ship and that sizable chunk of capability, whether we want our capability concentrated in those very large pieces or whether we want the capability spread out in smaller pieces.

For example, a carrier half the size or, let us say, half the cost, which would not be half the size but maybe one-third the size, could be deployed in place of this one at a much lower cost and still fulfill the commitment to have a naval presence wherever we wanted.

Senator STEVENS. This is the *Nimitz* class?

Admiral DAVIES. Yes, sir. You are talking about a battle group. That means the escort vessels with it; that gets, again, to this defensive posture that I mentioned. Defensive posture not only adds defenses to the ships but also defensive ships, which is what the escorts are.

Senator STEVENS. We are informed that one carrier would have two Aegis cruisers, two nuclear cruisers, two destroyers, a carrier air wing of 90 aircraft and 6 helicopters along with it. They say the total procurement cost is $6.2 billion, and associated operating cost for the whole battlegroup will be $340 million annually.

Now, I am even more confused by my numbers. My staff tells me the carrier and the air wing represent $6.2 billion but do not represent the total cost of the battlegroup.

If we add in the total cost of the battlegroup, we are talking about $13.5 billion in procurement and $552 million annual cost for the carrier battle group. That is a substantial amount of money.

Admiral DAVIES. It is indeed. I am not able to verify that. I am sure if you got those figures from the Defense Department they are undoubtedly right.

Senator STEVENS. Are you suggesting we ought to be going to smaller carriers?

Admiral DAVIES. Yes, sir.

Senator STEVENS. And increase our presence at lower cost?

Admiral DAVIES. That is right. I am saying that you can't do that if you maintain a numerical limit. Every part of the decision process drives you to the bigger ship. For example, if you put a limit—and I think this would require a lot of study—but you might imagine a limit of tonnage. Suppose instead of 13 carriers that there was a limit of a million tons or some number like that—I am not making that specific recommendation—then we could build more carriers.

Then the decision would have to be faced, do we want these large lumps of capability or do we want more smaller ones? As long as the actual numbers of ships are not constrained, I think you would find we would come out with smaller ships.

MOTHBALLED CARRIERS

Senator **Stevens**. What about our mothballed carriers? They still have capability.

Admiral **Davies**. Yes, there are those. As they stay in mothballs, of course, they get older and more difficult to bring out. The main thing is that if you are putting carriers into commission and you do not have a numerical limit, you would not have to mothball the older carriers, which are indeed smaller carriers, with lower cost of operation.

Senator **Stevens**. If instead of tonnage we just said we want to have sufficient carriers to deploy 1,200 aircraft?

Admiral **Davies**. Yes. Put it in terms of the capability of the wing itself, which is the real capability of the ship.

SQUADRON BASIS DEPLOYMENT

Senator **Stevens**. Squadron basis deployment?

Admiral **Davies**. I can't say that that would be the answer. All I am saying is that that certainly ought to be looked at. It sounds reasonable. I think someone should do a study of how should we manage these forces. I think the numerical limitation is obsolete; it has caused extremely high cost forces.

Senator **Stevens**. Your real point is that as we look at these carriers, it becomes cost efficient to add more and more aircraft by increasing the cost of the basic carrier. As we do, we get to the larger and larger carrier, which entails, of necessity, the larger escort force for a battlegroup?

Admiral **Davies**. That is right.

Senator **Stevens**. Mr. Johnston.

ALTERNATIVE TO "NIMITZ" CLASS FLEET

Senator **Johnson**. Admiral Davies, in the authorization bill coming up, which we will soon vote on, as I understand it there are two *Nimitz* carriers at $3.5 billion apiece, as part of a long-range plan to move to a 15 task force Navy, all of which will contain the *Nimitz*-class carriers.

Now, we have two or three options, as I understand it, in terms of amendments that will be offered. One will be the Hart amendment, which will scrub the two carriers and go to much smaller carriers. Now, the smaller carriers, I understand, I have been told that he has in mind, are those that are so small they cannot accommodate the F-18 or the other aircraft but, rather, would use the V/STOL; is that correct? What is the alternative to the *Nimitz* class?

Admiral **Davies**. I am not aware of that detail of the amendment and I have never seen the amendment. I am aware that something is being offered. The number I know is for those 40,000-ton carriers. A 40,000-ton carrier is in essence an *Essex*-class carrier and could handle almost any airplane that we have or anticipate. So, I would not think it would be limited to V/STOL.

The V/STOL carriers, at least when I was on active duty and aggressively trying to develop them, which was my pet project, were much smaller; they were around 18,000 tons. In fact, even had one designed at 12,000 tons, so that was to use V/STOL on ships that, in fact, could not handle fixed wing airplanes and thereby spread our aircraft capability out on more ships.

Senator JOHNSTON. When you are talking about small carriers, you have something in mind like the *Essex* class?

Admiral DAVIES. That is right.

"NIMITZ"-CLASS VERSUS "ESSEX"-CLASS CARRIERS

Senator JOHNSON. Now, with respect to our decision at this time, if the amendment were to move from *Nimitz* class to *Essex* class, what would be your advice to us at this time? I am not talking about over the long 15-carrier haul but rather for these 2 carriers. Should we go ahead, since these are designed and ready to go, and build one or both, or should we go toward an alternative, and if an alternative is not now designed, how much timelag would there be in getting a design?

Admiral DAVIES. I don't really have a fixed figure on design, but I don't think the design would be governing in a decision.

My recommendation would be to go for the two smaller *Essex*-class carriers, but with a proviso or at least make clear in the legislative history that these were to be replacements for one big one as far as this numerical limit that I mentioned.

Senator JOHNSTON. Could you build two *Essexes* for one *Nimitz?*

Admiral DAVIES. My point is, when 5 or 6 years from now they will be entering the fleet, say the limit is 15, these two should only count as one; otherwise, you see all you are doing is reducing the force. That is the unfortunate function of that numerical limit.

Senator JOHNSTON. The tradeoff of two to one?

Admiral DAVIES. I would not say it is two to one, but it may be 1.9 to 1 or 2.3 to 1, something like that.

Senator JOHNSTON. How about support force, the AEGIS carriers and all the rest that would have to go with the task force, could you halve that, in effect? In other words, could you get two *Exex* task forces for one *Nimitz* class?

Admiral DAVIES. That is hard to say. I would have to think about that one and take a look at it.

In general, if you don't have as many eggs in one basket, you don't need the defenses in the same quantity that you do now. Whether you cut them in half, I don't know. I would suspect you would not cut them in half. It would be something more than that.

I want to hasten to add that this is not that kind of simple arithmetic. You cannot say that you are going to get the same number of airplanes that way. You are actually going to get fewer airplanes. I think that is the economy-of-scale point I mentioned earlier.

Senator JOHNSTON. What percentage less?

Admiral DAVIES. It might be 10 or 15 percent fewer airplanes, but they will be more useful, since you can distribute them to different targets. That is the basic point; that is the part that is not considered in the decision chain as it now goes; it just says one more airplane is equal to one more airplane.

If you have 100 and you add 10, that is 10 percent. On that basis we go on forever.

Senator JOHNSTON. I am wondering whether you are saying, rather than keeping the limit, you double it? Do you really mean doubling or do you mean using the same number of dollars, getting whatever the same number of dollars will buy?

Admiral DAVIES. I mean essentially using the same number of dollars, but dollars are so changeable at this point that using the airplane force numbers, as was suggested by the chairman, or tonnage or something else, might be better.

Senator JOHNSTON. The same number of dollars in *Essex* is more useful than the same number of dollars in *Nimitz?*

Admiral DAVIES. That is right; that is my point.

VALUE OF CARRIERS IN NUCLEAR WAR

Senator JOHNSTON. Now, Admiral, are carriers useful in a nuclear war?

Admiral DAVIES. In my opinion, they are useful in the deterrent phase. They play a part in the argument about who has most, because they do have airplanes that are capable of dropping nuclear weapons.

A nuclear war is something that if you literally talk about a nuclear exchange the carriers play no part in. If you are talking about something other than that, as I say, arguing about how many warheads you have, if you are talking about tactical nukes, and if you believe tactical nukes are significant, then the carriers do play an important part in it.

Senator JOHNSTON. They do have a considerable vulnerability from nuclear missiles, don't they?

Admiral DAVIES. A nuclear warhead exploding within a fairly close range of a carrier would melt it down; it would be like everything else. The defense that the Navy considered years ago when they were talking about this sort of thing in nuclear war was distribution of the forces, spreading them out, so that the nuclear warhead could get an open piece of ocean or it could get a ship, but would not get three or four ships. That is the way you approach that.

As far as trying to resist the overpressure and that sort of thing, you could not come close.

Senator JOHNSTON. What I am really trying to resolve in my own mind is the sitting-duck phrase which has been used to describe the carrier; that begs the question of whether we are really trying to build this force as part of our strategic strength or really to do another, more conventional role. It seems to me it is the latter, which is not an argument against it.

Admiral DAVIES. No. As a matter of fact, I think our conventional forces certainly can stand a hell of a lot of improvement, the high-technology problem which has been mentioned, and lack of reliability and all of those things. A lot of the attention and what we call in the Navy command attention, as well as money, is going into the nuclear force. That is one of the reasons that the conventional forces are in the shape they are in.

LIFE OF MIDWAY-CLASS CARRIERS

Senator JOHNSTON. By the way, what is the useful life of the *Midway* and other carriers of its class?

Admiral DAVIES. Fundamentally, it is whatever you want to make it. The Navy, for planning purposes, did use for many years, 20 years. That is not just our Navy; every navy in the world adopted that many years ago. However, many of our ships got to be a lot older than 20 years, so people talk in terms of 30 years now.

The simple fact is that as they get older the maintenance on them goes up and it is a very subtle effect, so when you propose to chop it off and say that is the useful life, it is pretty hard to do. I would say it would be somewhere between 25 and 30 years. The ship itself gets to be really in an amazing state.

For example, you run electrical wires to put in a system at the beginning of a ship and you get a bank of 10 cables somewhere. Ten years later if you look at that same bank of cables it is now 150 cables because they have put in a whole lot of new systems and never take out the old cable. It is too costly to take them out. After a while the ship slowly fills in with its systems to where you can hardly move around in it.

Twenty, twenty-five, thirty years is probably a rational number to use.

Senator JOHNSTON. Thank you.

Senator STEVENS. Thank you very much, Admiral. We appreciate your courtesy in taking the time to participate in our hearings.

Admiral DAVIES. Thank you, Mr. Chairman.

PREPARED STATEMENT

Senator STEVENS. The committee has received a prepared statement from the International Division of the U.S. General Accounting Office. It will be inserted in the record at this point.

[The statement follows:]

PREPARED STATEMENT OF U.S. GENERAL ACCOUNTING OFFICE

(INTERNATIONAL DIVISION)

ON

DEFENSE BURDENSHARING BY JAPAN

Mr. Chairman and Members of the Committee:

Thank you for this opportunity to present GAO's views on defense burdensharing by Japan. We first reported on Japan's defense spending and the issue of equitable sharing of the defense burden between the United States and Japan in 1971. We recommended joint action by the Departments of State and Defense to identify cost sharing objectives and approaches in Japan. Since then, we have issued three other reports on this subject, two of them at the specific request of congressional committees. In 1978, we reported that pay practices for Japanese nationals employed by U.S. forces in Japan needed to be changed because Japanese employed by the United States military were earning more than their counterparts working for the Japanese Government or in private business. In 1980, at the request of the House Appropriations Committee, we assessed Japan's efforts to share U.S. stationing costs, identified spending by Japan that reduced U.S. costs and traced the background of Japan's defense spending levels. We also suggested ways in which cost sharing could be increased. Our most recent report was issued in February 1982 in classified form, with an unclassified version issued in March. It was done for the House Ways and Means Committee, Subcommittee on Trade. The report dealt with Japan's coproduction of military aircraft and the impact that program has on Japan's defense costs and on the modernization of its civil aircraft industry. Our statement today briefly summarizes the message and recommendations of these reports, relating them to the overall burdensharing issue. While Japan has made some efforts to increase burdensharing, significant opportunities exist for increases in Japan's support of U.S. forces.

Our 1977 report, "The United States and Japan Should Seek A More Equitable Cost Sharing Arrangement" (ID-77-8, June 15, 1977), pointed out that Japan had prospered under the security provided by the U.S. defense umbrella and had developed into an economic superpower capable of assuming a greater share of common defense costs. However, political, constitutional, and psychological constraints limited Japan's ability to expand or use military power. National policy prohibits the manufacture, possession, or introduction of nuclear weapons into Japan. Its constitution--written under U.S. supervision after World War II--prohibits any overseas security role and provides only for a self-defense military force. The Government of Japan faces domestic political difficulties in increasing the size of the Self Defense Force or increasing defense spending beyond a self-imposed limit of approximately 1 percent of its gross national product.

At the time of our 1977 report, the major cost sharing by Japan for U.S. forces was the provision of land and facilities, some of which the Japanese Government had to rent from private owners. This amounted to a little over $100 million yearly. Japan also incurred costs for support to communities near U.S. bases and for various administrative activities. In addition, the Japanese had undertaken a program to consolidate and relocate many U.S. facilities, and the government spent about $160 million on this program in 1976. In our report, we cited three potential cost sharing areas that the United States and Japan could pursue--local national labor costs, joint use of facilities, and complementary force development. The most promising of these areas was labor cost sharing. Japan proposed a plan, largely as a result of our emphasis in the report, under which it paid some of the benefits received by Japanese nationals that exceeded prevailing practices. These costs were estimated at about $26 million annually.

In our 1978 report, "Department of Defense Pay Practices For Japanese Nationals Should Be Changed" (FPCD-78-47, May 31, 1978), we found that the $26 million was only a small portion of the excess payroll costs, and we recommended that the United States urge Japan to eliminate these excess costs or pay them for the U.S. forces. In 1979, Japan began paying many of these costs as well, and increased its total labor cost sharing to about $57 million that year.

In 1979, the House Appropriations Committee asked us to follow up on our previous reports to quantify support provided by Japan and discuss other potential cost sharing areas. Our November 1980 report, "Host Nation Support of U.S. Forces--Our Experiences With Japan" (C-ID-81-1, Nov. 14, 1980), was classified and it is difficult to discuss in any detail our findings and recommendations. In general, we found that Japan was still spending only about nine-tenths of one percent of its gross domestic product on defense--much lower than any other industrialized nation. Also, because of Japan's rapidly expanding economy, the government has been able to increase defense spending while staying within its 1-percent guideline. Defense spending in 1980 was about 2.2 trillion yen (just under $9 billion), an almost fourfold increase over the 1970 defense budget of about 570 billion yen. Still, that level of spending in 1980 represented only about 7 percent of the U.S. defense budget and left Japan's defense spending behind such nations as China, Germany, Britain, France, and Saudi Arabia.

U.S. policy has been to encourage Japan to make steady and significant increases in its defense spending to augment the mutual defense capabilities in the Pacific, provide for a more equitable burdensharing arrangement, and reduce U.S. costs. Defense officials have taken the twin-pronged approach of urging improvements in Japan's defense forces and, at the same time, increasing the amount of host nation support provided to U.S. forces in Japan.

The basis for host nation support in Japan is set forth in the Status of Forces Agreement. The Agreement obligates Japan to furnish the "facilities and areas" needed by U.S. forces while the United States will "bear all [other] expenditures incident to the maintenance of the United States armed forces in Japan." Japan's responsibility has been interpreted to include the land and the basic structures for U.S. bases but exclude labor, facility maintenance, furniture, and equipment (except furnishings, equipment, and fixtures existing in the facilities initially transferred from Japan). U.S. responsibility has been interpreted to include all operation and maintenance costs for the bases in addition to the costs to staff, equipment, supply, and transport U.S. forces.

Within the terms of this Agreement, Japan has made increases in its cost sharing for U.S. forces in recent years. In construction, the initiation of the Facilities Improvement Program provided about $100 million in 1979 and $123 million planned in 1980. The program is continuing to provide modern, comfortable facilities for housing U.S. military personnel, replacing old, inadequate buildings and sometimes increasing the inventory of housing available to the United States. Very little U.S. military construction money is used in Japan, largely as a result of this program.

Despite these increased Japanese efforts toward sharing U.S. costs in recent years, U.S. officials generally agree that opportunities exist for greater Japanese cost sharing. Although Japan pays for some labor costs, the United States, for example, still had a payroll totaling $300 million for Japanese nationals in 1980. Total U.S. operations and maintenance costs in Japan are at least $700 million annually, and Japanese sharing of some or all of those costs would represent a clear budgetary savings to the United States. In an official statement prepared for our 1980 report, officials of U.S. Forces Japan stated that the Status of Forces Agreement "clearly does not impose an obligation on Japan to pay for the maintenance of U.S. forces; however, [the Agreement] does not prohibit any other party or Japan from contributing to the maintenance." Another cost sharing potential is increased facilities construction, including priority facility needs other than housing.

Our most recent report on defense issues in Japan is titled "U.S. Military Coproduction Programs Assist Japan In Developing Its Civil Aircraft Industry" (ID-82-23, March 18, 1982). As the title indicates, the report was not specifically aimed at burden-sharing, but the issue of coproduction in this case is closely tied to Japan's defense spending, trade imbalances, and willingness to share U.S. costs.

The United States enters into military coproduction arrangements primarily to achieve national security objectives, but it also receives economic benefits in the form of licensing and technical assistance fees, research and development recoupment, and the sale of equipment, tools, and weapons systems components.

Through military coproduction programs the Department of Defense sees an opportunity to (1) improve U.S. allies' military readiness through expansion of their technical and military support capability and (2) promote U.S. allies' standardization and interoperatability of military equipment. Japan, and other purchasing countries, see military coproduction arrangements as a way to obtain advanced technology, enhance their high-technology employment base, develop future export industries, and increase their military self-sufficiency. Japan has used the coproduction of various U.S. military aircraft to enlarge and develop its civil aircraft industry. Today, Japan is involved in a number of military and civilian aircraft coproduction programs using advanced technology acquired from the United States, as well as European countries. The major civil aircraft program is the Boeing 767. Military coproduction--including current coproduction of the F-15--is clearly one of the contributors to the development of Japan's civil aircraft industry. As a result of Japanese efforts to develop a viable aircraft industry through coproduction programs, Japan could one day be a competitive force in the worldwide civil aircraft market--a clear goal of the Japanese Government.

Our report points out that the United States has not devoted adequate attention to these economic issues in initiating and approving military coproduction projects. We do not take exception to the national security objectives pursued through coproduction, but we believe that the Departments of State and Defense have too narrow a perspective to adequately address the attendant domestic and international economic, industrial, and labor interests and perspectives. We recommended that agencies such as Commerce, Treasury, Labor, and the Special Trade Representative be involved in developing a clear policy on military coproduction and have a role in approving coproduction requests involving high-technology items.

Another aspect of the F-15 coproduction program in Japan which relates to U.S. concerns over burdensharing is the additional cost Japan incurs to coproduce the aircraft rather than making an outright purchase from the U.S. contractor through normal foreign military sales procedures. Some coproduced items cost Japan two to three times the purchase cost from U.S. production lines. Japanese defense production is inefficient, relative to the United States, because of the far shorter production runs. Japan's self-defense force has limited requirements and Japan's national policy prohibits military exports. Also, under coproduction arrangements, costs are higher because Japan must pay licensing and technical assistance fees to the U.S. companies that developed the equipment initially. Moreover, coproduction affects the price the U.S. military pays for the item, because if the item were purchased from U.S. production runs, the unit cost would be lower for all items produced, including those bought by U.S. forces. Not only would Japan save, but the United States would also save. The cost figures involved in the F-15 program are classified and are outlined in the classified version of our report.

SUBMITTED QUESTIONS

Senator STEVENS. The committee has additional questions which we will ask you to answer for the record.

[The following questions were not asked at the hearing, but were submitted to the Department for response subsequent to the hearing:]

ADDITIONAL COMMITTEE QUESTIONS

Economic Impact of U.S. Defense Expenditures

QUESTION: In 1980 U.S. defense expenditures entering our allies' economies totaled $10.3 billion. Nearly $6 billion of this total went to NATO and nearly $1 billion went to Japan. Can you estimate what these totals would be this year?

ANSWER: This year, we estimate that our defense expenditures in NATO will be approximately $6.8 billion while those in Japan will be about $850 million.

ECONOMIC IMPACT OF U.S. DEFENSE EXPENDITURES

QUESTION: We have approximately 38,000 troops in Korea and 45,000 in Japan. Why is the rate of U.S. military spending entering the Japanese economy nearly 4 times that of Korea?

ANSWER: The differences in the level of US funds entering the Japanese versus the South Korean economy are caused by a multitide of factors. These include differences in wage rates, sophistication of US equipment supported, and the support provided from bases in Japan for US Navy ships operating throughout the Western Pacific and Indian Oceans. For example, the Ship Repair Facility in Yokosuka contains the only US controlled drydock west of Hawaii capable of accommodating the largest class of US aircraft carrier and is critical to Seventh Fleet operations. This 4:1 ratio will likely change over the next few years as the ROK tries to increase the amount of US equipment in the Western Pacific that they maintain.

ALLIED SUPPORT TO BEAR MORE OF THE MUTUAL DEFENSE BURDEN

QUESTION: The Subcommittee is concerned that our defense resources might not match our far-reaching global commitments. At the same time that we plan a real increase in defense outlays of 12 percent in 1983, our NATO allies seem to be unable to meet their commitments to increase their defense spending by 3 percent.

How can we be more successful in getting our allies to bear more of the mutual defense burden?

ANSWER: In an alliance of free nations how each nation chooses to decide what level it should spend for defense is (and should be) a function of the threat it perceives and not its perception of what other allies are doing. To use cohersion to force a nation to do more for defense than it feels necessary only builds up stress that will eventually cause the alliance to fall apart.

The problem we face then is to convince our allies that our perception of the threat is correct and that we must all do more. To produce convincing arguments in time of economic adversity when populations are keenly interested in the guns or butter arguments and parlimentarians and political parties are fighting for survival is extremely difficult.

We are continuing to work with our allies bilaterally and through NATO privately and publicly to get the situation across to the publics. The release of the NATO White Paper on the NATO-Warsaw Pact Force Comparison is only one example of more recent multilateral public efforts.

Means of Improving Allied Defense Efforts

QUESTION: Last year Secretary Weinberger announced a rational division of labor among the allies would be a cornerstone of the Administration's defense policy. Since then, our commitments have been growing rapidly while our allies' spending increases actually dropped from a 2.6 percent real growth in 1980 to between 2.2 and 2.6 percent in 1981. Forecasts for this year are equally gloomy.

Doesn't this suggest that we are doing something wrong with our policy of quiet diplomacy?

ANSWER: We are not satisfied with the efforts which NATO as a whole and some nations in particular are making to increase defense expenditures. On the other hand, the situation is not as bad as it could be considering the economic situation in many of the NATO countries. The fact that most nations are making real increases in defense spending, while many have declining GDP and other segments of their budgets are sustaining real decreases, is of some encouragement. The answer, therefore, must be to work together to improve efforts to educate our publics on the nature the Soviet Warsaw Pact threat and to cooperate in improving the economic situation making it easier to devote additional resources to defense. To use cohersive tactics and threats with our allies at this time would only serve the purposes of anti-defense groups and the Warsaw Pact members that would like to see the NATO alliance weakened.

ALLIED OFFSETTING OF INCREASED US DEFENSE EFFORTS

QUESTION: Isn't it a simple fact of human nature that if we do more for our allies, they will do less?

ANSWER: No. What our allies do depends on how they perceive the threat and what needs to be done to counter the threat. How the US perceives and responds to the threat has a significant impact on their perception. Therefore, if they see the US cutting its defense program and draw the conclusion that we don't take the threat seriously, they are also likely to flag in their efforts. In the same manner, they are more likely to agree with our perception of the threat and increase defense efforts if they see we take it seriously enough to increase our efforts.

Allies' Soviet Trade

QUESTION: What is the total value of subsidized loans provided by our NATO allies for the Soviet pipeline? What are the military implications?

ANSWER: About 85 percent of the hard currency requirements for the West Siberia pipeline, some $8.5 billion, will be made in the form of below market-rate loans. The remaining 15 percent, except in the case of France, will be paid in cash. It is our understanding that part of the low interest rates will be offset by artificially high charges for equipment. We view officially supported credits to the Soviet Union generally to be a mistake for strategic and economic reasons. These loans ease the Soviets' dilemma in choosing to use their limited financial resources for civilian investments or to continue their military build-up. Additionally, given the Soviets' current financial situation, caused by Eastern Europe's economic problems, Soviet crop failures, falling energy prices, and Soviet economic inefficiencies, we believe that new loans are not financially prudent.

ALLIES' SOVIET TRADE

QUESTION: How much of Japan's trade with North Korea can be used militarily, possibly against another ally -- South Korea?
ANSWER: (Deleted.)

QUESTION: Please tell the Committee what resulted from Ambassador Buckley's recent trip to Europe to discuss these issues.
ANSWER: We would prefer that Under Secretary Buckley as leader of his mission provide the details of his discussions with our Allies. (NOTE: Department said the discussions were not releasable.)

JAPANESE DEFENSE SPENDING

QUESTION: Secretary Weinberger has praised the Japanese for this year's real increase of 4.6 percent in defense spending, which will be about $800 million. What has this increase meant in terms of improved Japanese capabilities to defend itself?
ANSWER: With this increase Japan has begun procurement of 23 McDonnell Douglas F-15 fighters, seven Lockheed P-3C aircraft, three new destroyers, which will carry the U.S. designed Harpoon weapons system and one submarine. Over $2 billion of the costs of these systems have been deferred to 1983 and beyond; however, in the Japanese system these costs must be funded in the future since the first installments have been legislated.

QUESTION: Last year Japanese Prime Minister Suzuki reportedly pledged to President Reagan that Japan would defend 1,000 nautical miles of sea-lanes. More recently, we understand Secretary Weinberger asked Japan to increase its defense spending by 12 percent annually to meet that commitment. Yet, only a few days after the Secretary's visit, Kyodo News Service reported Suzuki had again backed away from the 1,000 mile pledge. What is actually happening?
ANSWER: Prime Minister Suzuki did not pledge to President Reagan that Japan would defend its sea-lanes to 1,000 miles. At the National Press Club, the Prime Minister acknowledged the Japanese policy goal of being capable of sea-lane defense to a distance of 1,000 miles. The U.S.G. has endorsed this Japanese goal which the Prime Minister has not backed away from. He has only said that he didn't promise anything new about sea-lane defense while he was in Washington.

CHANGES IN MUTUAL DEFENSE

QUESTION: Would increases in Japanese military capabilities permit a decrease in U.S. force levels in Japan or U.S. costs in the region?

ANSWER: The U.S. does not maintain any forces in Japan exclusively for the defense of Japan. The approximately 25,000 U.S. Marines stationed in Japan are the U.S. Seventh Fleet Marine Force subject to deployment anywhere within the Seventh Fleet's operating areas in the Western Pacific and Indian Oceans. The remainder of our forces in Japan are largely engaged in manning our bases there which support U.S. operating forces in East and Southwest Asia. Since the U.S. is expected to build up its defense capabilities, our costs in the area are unlikely to decrease even if the Japanese increase their military capabilities as we expect.

CHANGES IN MUTUAL DEFENSE

QUESTION: What types of improvements would the U.S. like to see Japan make? What would these improvements cost?

ANSWER: The U.S. would like to see Japan improve its ground, maritime, and air forces qualitatively and quantitatively as necessary in order to carry out effective defense of its territory, its surrounding sea and air and its sea-lanes to a distance of 1,000 miles, policy goals which Prime Minister Suzuki stated were within Japan's constitutional limits. We estimate that Japan would need to make annual real defense spending increases for the next ten years greater than the 7.8 percent real increases they made during the decade of the 1970s.

QUESTION: Under the Mutual Security Treaty between the U.S. and Japan, we are committed to defend Japan, but Japan has no reciprocal obligation. It has been suggested that the treaty should be renegotiated to bring it to the degree of reciprocity appropriate to current and future circumstances. According to news reports, this proposal has at least some support in Japan, where more than 100 Diet members have formed a committee supporting an expanded Japanese military role in the treaty.

Is it correct that Secretary Weinberger opposes renegotiation of the treaty? Why?

ANSWER: The U.S.-Japan Treaty of Mutual Cooperation and Security obligates Japan and the U.S. to act to meet the common danger in accordance with its constitutional provisions and processes in cases of an armed attack against either Party in the territories under the administration of Japan. The U.S. is also granted bases under the Treaty for the purpose of contributing to the maintenance of peace and security in the Far East. Prime Minister Suzuki stated in 1981 that Japan can, within the framework of its Constitution, contribute to the defense of its territory, its surrounding sea and sky, and its sea-lanes to a distance of 1,000 miles. Thus the Treaty and U.S. and Japanese policies permit the U.S. and Japan to fully carry out their security interests in Japan and in the Far East. Revision of the Treaty or any other measures suggesting Japanese military responsibilities beyond the Northwest Pacific would be unwelcomed by other U.S. allies and friends, particularly in Southeast Asia.

JAPANESE DEFENSE ALTERNATIVES

QUESTION: A recent SRI international report suggests that one way the U.S. could come to terms with Japan and burden sharing would be to reconsider and redefine the missions of our forces in Asia.

Has any thought been given to designating the Marines in Okinawa as an element of the RDF or deploying the 7th Fleet more frequently in the Indian Ocean?

ANSWER: The Marines in Okinawa are not assigned to the defense of Japan. They constitute instead the U.S. Seventh Fleet ready Marine force and could be deployed anywhere in the Seventh Fleet's operating areas in the Western Pacific and Indian Oceans where the Fleet operates regularly. Although the Marines are presently not designated as elements of the RDF, they could be so designated in the future.

QUESTION: The U.S. has made numerous high level calls for Japanese defense spending, most recently just last month by Secretary Weinberger. What results have these talks achieved? What other U.S. actions are planned besides talks?

ANSWER: In the Japanese fiscal year which began on April 1, defense received a 7.754 percent budget increase (4.6 percent in real terms). The average for all other government ministries and agencies, including social welfare, education and public works, was less than two percent nominal (negative real) growth. To follow up the Secretary's visit to Japan in March, the two countries will hold major defense talks in July and Japan's Defense Minister will visit Washington in September. Sometime this year the GOJ is expected to announce its 1983-1987 defense plan.

QUESTION: Japan now provides about $1 billion to host nation support. Since the U.S. is obligated by treaty to defend Japan, why shouldn't Japan pay for all the costs which are now estimated at over $3 billion, associated with stationing our troops on its territory?

ANSWER: The U.S.-Japan Treaty of Mutual Cooperation and Security obligates both the United States and Japan to take actions to meet the common danger when an attack on either party takes place in the territories under the administration of Japan. Under the Status of Forces Agreement (SOFA), Japan is required to provide bases to the United States rent free, and the United States is obligated to provide all expenses incident to operating these bases. In addition to providing bases which are estimated to cost $200 million in equivalent rent, the GOJ funds on a largely voluntary basis an additional $800 million in other expenses on behalf of U.S. Forces annually. These additional funds in 1982 include $75 million for U.S. labor costs and over $180 million in U.S. requested military construction projects. Without these voluntary Japanese contributions which Prime Minister Suzuki has pledged to increase further, annual U.S. costs of approximately $2.2 billion would be considerably larger.

QUESTION: Development assistance is often cited as an indirect method of burden sharing. Japan has announced that it will double its official development assistance. Last year the Koreans "demanded" $6 billion in ODA from Japan over the next five years because it plays a major role in Japan's defense. What is the status of these discussions?

ANSWER: The discussions between Korea and Japan on this subject are still continuing. Although the U.S. has supported the principle of Japanese financial assistance to the ROK in general, we have not taken sides in this Japanese - Korean matter presently under discussion.

QUESTION: Japan now pays a portion of the payroll cost of Japanese nationals working for U.S. forces in Japan (about $57 million in 1979, the last year available). U.S. costs for civilian payrolls was still over $400 million that year and were increasing. This is the largest single operation and maintenance cost item in Japan. Why won't Japan assume a larger share of these costs? Do any agreements or regulations prohibit their paying more?

ANSWER: Japan does pay some part of the cost ($75 million in 1982) of Japanese labor contracted by U.S. Forces. The Status of Forces Agreement (SOFA) does not require any Japanese payment other than providing rent free bases. Nonetheless, the Japanese are expending more than $800 million for costs (including labor) in excess of the rent for the bases owned by the GOJ. We hope and have asked that Japan voluntarily assume more costs including labor in the future. Prime Minister Suzuki has pledged that Japanese efforts will increase. In 1982 the GOJ program for military construction projects increased by 27 percent (to over $180 million) over 1981.

CHANGES IN MUTUAL DEFENSE

QUESTION: Our Status of Forces Agreement (SOFA) with Japan was negotiated in 1960 at a time when its economic condition was vastly different than today. In light of Japan's economic strength and trade imbalance with U.S., to what extent does the SOFA now restrain the U.S. in seeking additional cost sharing? Why can't the agreement be renegotiated to recognize current conditions?

ANSWER: The Status of Forces Agreement (SOFA) provides that Japan must provide bases and facilities for the U.S. rent free and that costs of operating these bases lie with the United States. The SOFA does not prohibit Japan from voluntarily assuming U.S. costs as the GOJ has done in generously providing over $100 million worth of construction annually for U.S. forces from 1979-1982. The U.S. has sought additional cost sharing and Prime Minister Suzuki pledged in May 1981 to increase Japanese efforts. Since the present SOFA is not restraining this development and since other provisions of the SOFA are working well also, we see no need to change it.

CO-PRODUCTION

QUESTION: Weapons co-production is to improve military capabilities among our allies and promote standardization, but we understand it can be expensive. The Japanese reportedly will pay $47 million for each F-15 they co-produce in 1982, about $27 million more than the unit cost under the foreign military sales program. That's $324 million in excess costs for the 12 F-15s in 1982 - or roughly half of Japan's increase in defense spending.

In view of the fact that we have had so little success in persuading the Japanese to bring their defense spending up to a reasonable level, how can we justify this costly co-production?

ANSWER: The decision to co-produce or not to co-produce is a Japanese decision. The United States encourages Japanese purchase of weapons systems as the most inexpensive and fastest means of increasing defense capability. When small numbers of equipments are involved, the Japanese will usually purchase, for example they are buying eight Grumman E-2Cs for surveillance purposes and twelve C-130s for transport and minelaying purposes. When large numbers are involved, such as 100 F-15s, the Japanese prefer co-production. The U.S. could of course refuse. The French and others are standing only too ready to let the Japanese co-produce one of their systems, or the Japanese could develop their own system which they then might try to sell to others. (The latter option would require a policy change since they presently do not sell weapons.) Although the co-production of 100 F-15s may have cost the Japanese more money (recently there are some indications that with exchange rate changes and U.S. cost increases the difference is not so much greater), the F-15 contract has returned $1.9 billion and 40,000 man-years of labor to the United States. The American Chamber of Commerce in Japan, on behalf of U.S. industry, has spoken out very clearly in favor of co-production as a very positive alternative to being shut out of Japanese weapons systems procurement.

QUESTION: The F-15 is only one of the items being co-produced. How much of Japan's $11.7 billion defense this year will go for excess costs of co-production? Please supply for the record the quantity, the FMS price for each item now in co-production, and the total the Japanese will pay per unit in fiscal year 1982.

ANSWER: The items which the Japanese are co-producing in 1982 are as follows:

System	# in 1982 Budget	Estimated FMS Cost	Estimated Cost to GOJ in 1982
F-15	27	$ 28.9 million	$ 47.9 million
P-3C	3	$ 24.0 million	$ 30.0 million*
I-Hawk Missile	12	$150,000	$225,000

* Co-production operations consist of assembly of knockdown kits and lay-in of raw materials and industrial plant equipment. When the program is mature, unit cost to the GOJ is expected to increase to approximately $40.0 million.

QUESTION: Please supply similar information for all items now being coproduced with our NATO allies, Australia, and New Zealand (i.e., from Question 21, the quantity, FMS price for each item now in coproduction, and the total price the country will pay per unit in FY 1982).

ANSWER: The following major equipment items are being coproduced. The FMS value is estimated because unit prices are a function of many variables. Information on the costs of production in other countries is not available:

Country	Item	Quantity	Est Value ($M)
Germany	MOD Flir	8,341	568
	AIM-9L*	8,800	519
	E3A (AWACS)**	18	1,700
Netherlands	M109 SP Howitzer	220	79
Canada	TOW	Unknown	Unknown
	LAW	225,700	11
United Kingdom	TOW & Helicopter Roof Mounted Sight	120	70
	AV-8B	60	1,500
Norway	LAW	986,348	41
Italy	M113A1 APC	4,619	159
	M109 SP Howitzer	258	41
	Argos 10 (Radar)	6	27
Greece	Tank Components to Convert M48A1 to M48A5	55	11
	90MM Recoilless Rifle	1,500	12
	Bridge, Floating (light tactical)	60	4
	Tank Components to Convert M48A3 to M48A5	102	30
NATO (Joint)	ANSQ-73	11	167
	HAWK Improvement	4,868 missiles	1,485
	F-16	390	4,351
Australia	F-18	75	3,100
New Zealand	(none)		

* FRG led consortium
** FRG/Canada

EQUITABLE US SHARE OF COST OF DEFENDING EUROPE

QUESTION: In 1981, the US spent $107 billion on forces formally committed to NATO while total defense spending for our NATO allies was about $110 billion. We are also investing in the defense of Southwest Asia as well as other forces to be used in the European conflict.

Does this suggest that we are indeed carrying more than our fair share of the cost of defending Europe?

ANSWER: The United States is a world power with worldwide responsibilities and commitments. Trying to segment our forces to discrete missions in particular regions of the world is not possible and the implications that they are designated to a particular role for others' sole benefit is misleading. The fact that most of our forces are designated for NATO is recognition that defense of Europe with its industrial economic wealth, and shared social and political beliefs is in our own best interest.

There is also a misconception of how much of the day-to-day burden of NATO falls on European shoulders. In peacetime, they provide roughly 90% of NATO's ground forces, 75% of the air forces, and 80% of the naval forces in Europe.

Nevertheless, the recent US undertaking to beef up US forces worldwide will serve to make our contribution to the common defense somewhat more than our fair share based on analysis of an aggregate of quantifiable measures. This is the reason that our goal is and will continue to be to encourage a steady, coherent and sustained growth of allied defense capabilities.

NATO BURDENSHARING

QUESTION: Why are we launching an expensive master restationing plan for our troops in Germany? What is its total estimated cost? Do the Germans really support the restationing plan? How much will they pay of overall costs?

ANSWER: The Master Restationing Plan supports the continued program for upgrade of US Army facilities in Europe. Since extensive construction is required in any case, the US Army decided to locate some of the new facilities in militarily well-sited locations, and restation the 8th Infantry Division (Mechanized) east of the Rhine River. By doing so, the Division is able to more effectively perform the tasks that would be assigned to it during wartime. Estimated costs for the program are $1.12 billion. The German Government has told us that they will provide all administrative support required for the Master Restationing Plan. However, they have not agreed to pay for any portion of the program. We are continuing discussions with the goal of obtaining German financial assistance.

Substitution of Reserve Forces for Active Forces

QUESTION: If Congress looked to a general force reduction as an economy measure in the Defense budget, the impact could be softened by a simultaneous buildup in National Guard and Reserves. Has the Department developed any scenario for shifting active forces abroad into the Guard and Reserve here at home?

ANSWER: The most critical period in scenarios for theaters where we have major concentrations of troops abroad are the early days of conflict. Reserve and Guard maneuver forces cannot attain the readiness levels required for no-notice deployment. In addition, the already significant strategic mobility problems we face in deployments to those theaters make substitution of even active forces at home for active forces abroad a risky venture from both a deterrence and a war fighting perspective.

QUESTION: Don't the Guard and Reserve have the capacity to expand their manpower without any substantial increase in basic facilities?

ANSWER: The Guard and Reserve have an expansion capacity to bring units in the current structure to currently projected strength levels, without a substantial increase in facilities. Beyond that, if you are talking about increasing the number of units in the Guard and Reserve structure, a relative increase in the number of facilities, e.g., armories, storage, maintenance, and training sites would be required.

Rationale for Defending Southwest Asia

QUESTION: The oil resources of the Mideast are far more important to Europe and to Japan than to the United States. Why then have we been so quick to assume the major burden of defending Southwest Asia?

ANSWER: Although it is true that the Mideast provides a larger share of oil supplies to Europe and Japan than to the US, it is not true that those oil resources are more important to Europe and to Japan than to the US. For the foreseeable future, the U.S. and its allies will remain heavily dependent on Persian Gulf countries for a significant share of their oil supplies. During 1981, the Persian Gulf countries supplied the U.S. with more than 27 percent of its foreign supplies, Western European allies with more than 50 percent of their foreign supplies and Japan with 65 percent of its foreign oil supplies. In recent months, the Persian Gulf countries have accounted for 30 percent of free world oil production (producing approximately 12 million barrels per day in March). However, in terms of productive capacity, these countries account for more than 45 percent of free world capacity and their export potential is considerably greater. Moreover, of the estimated surplus production capacity of 15.5 million barrels per day, approximately 70 percent (11 million barrels per day) is located in the Persian Gulf. Thus, current production levels in Persian Gulf countries are 2.5 times greater than the surplus capacity available outside the Gulf. More significantly, however, is the importance of the Persian Gulf oil producing nations in the longer term. The nations bordering the Persian Gulf represent over 50% of the world's proven oil reserves; therefore, they will continue to be of major importance to the industrialized world for the foreseeable future.

World demand for oil is not sensitive to the source of production, but rather price and availability. Should Persian Gulf oil not be freely available to the world, or should it be controlled by a power hostile to the free world, the impact could be disastrous. Today's industrialized world and the international economy are tied inextricably together. Because of the interdependencies and interrelated nature of the Western economies, the prosperity and survival of our economy are linked to that of our major allies and trading partners, and we have created organizations such as the International Energy Agency to share limited resources with our allies in times of international crises and shortages.

The most demanding threat to the Mideast oil resources and the Southwest Asia region resides in the military power of the Soviet Union. The Soviet Union is a military superpower with power projection capabilities more extensive than ever in the history of the USSR. The US is the only single power that can meet the requirements necessary to deter the Soviet threat to the region. With the support of our allies within and without the region, we represent together the force required to deter Soviet aggression.

Allied Cooperation in Southwest Asia

QUESTION: Exactly what are our European and Japanese allies doing to help either directly or indirectly in the stability and security of Southwest Asia? What are we asking them to do beyond that?

ANSWER: Our allies are already playing an important role in the security of Southwest Asia, but at the same time, we are encouraging them to do more. They are reducing their dependence on Persian Gulf oil and aiding regional states through economic and security assistance programs. Some states, in particular the UK and France, maintain a peacetime military presence in Southwest Asia, which helps greatly to demonstrate our common interests there. We are also encouraging our allies to build on some of their close political relations with SWA nations to strenghten understanding of

Western objectives in the region and of our common interest in resisting Soviet aggression. More naval and air deployments, visits by military delegations, joint exercises with regional states, training programs, and other cooperative arrangements would also be useful actions. The US continually consults with its allies on the issue of increased allied support in Southwest Asia.

Indirect Allied Cooperation in Southwest Asia

QUESTION: If the allies assume more of their own regional defense responsibilities, this would provide at least indirect assistance to the US in assuming the Southwest Asia defense burden. What are we doing to encourage that among our allies, and what is their response?

ANSWER: We recognize that the US cannot--and should not--carry a disproportionate share of defending the free world's interests in Southwest Asia. Primarily, we expect our allies to improve their own regional defense capabilities to compensate for the diversion of US military resources to SWA. We, therefore, have asked the allies to consider compensation measures. For example, if US lift capabilities were engaged in deployments of Southwest Asia, firm commitment of allied civil wide-body aircraft and sealift support would be a critical factor for ensuring rapid reinforcement of Europe. West Europeans could also directly aid US efforts by granting overflight rights and en route access for our deploying forces. We have also suggested that they increase the number of combat support and combat service support units that would be available to NATO. The allied are currently studying the US proposals for compensation.

Allied Cooperation

QUESTION: How can our allies help more directly with military assistance in Southwest Asia?

ANSWER: The United States regards contributions from our allies as critical to the protection of our common interests in the region. While we have asked our allies to assume more of their own regional defense capabilities, thereby freeing US forces to respond to a SWA contingency, there are other military actions they could take to contribute more directly:

-- Increased peactime military presence, conducting of joint exercises and training programs, exchanging military advisors, and cooperative intelligence sharing would enhance the demonstration of our common interest in the region.

-- Cooperation on en route access and overflight rights crucial to any major deployment of US forces to SWA. Our experiences during Bright Star 82 well demonstrate allied willingness to cooperate.

-- Firm commitment of NATO airlift and sealift assets to ensure timely reinforcement of Europe or necessary force deployment to SWA.

-- If feasible, military participation in the defense of our mutual interests in Southwest Asia. Such would demonstrate Western solidarity, increase the costs of aggression to the Soviets and strengthen our ability to limit hostilities to the region.

US/ Allied Economic and Security Assistance

QUESTION: What are our allies really doing to increase economic and security assistance to key countries in Southwest Asia? How does that assistance compare to our own? Please supply for the record the most up-to-date information available on actual spending and commitments to spend by our allies, directly or indirectly, in support of Southwest Asian security. Include with that record submission a detailed summary of our own spending in this connection.

ANSWER: See following attachments:

EGYPT

Economic Aid Disbursements from Selected Donors 1977-1981
(Millions of US Dollars)

	1977	1978	1979	1980	1981
France	10.5	19.8	59.7	34.6	
West Germany	66.4	67.3	132.0	111.7	
Italy	6.8	3.2	3.6	1.2	
Japan	67.3	118.8	132.7	123.5	
UK	6.2	7.1	37.4	28.5	
US	908.2	952.6	1083.5	1183.4	1132.9

KENYA

Economic Aid Disbursements from Selected Donors 1977-1981
(Millions of US Dollars)

	1977	1978	1979	1980	1981
France	0	5.2	3.5	4.1	
West Germany	18.9	41.2	69.7	35.7	
Italy	0.4	0.4	0.3	0.3	
Japan	5.0	11.7	36.3	28.2	
UK	22.6	48.5	56.3	49.3	
US	34.1	34.1	21.3	57.5	49.9

OMAN

Economic Aid Disbursements from Selected Donors 1977-1981
(Millions of US Dollars)

	1977	1978	1979	1980	1981
France	0	0	0	0.2	
West Germany	0.12	0.02	0.03	0.09	
Italy	0	0	0	0	
Japan	0.01	0.14	0.31	0.55	
UK	0.44	0.45	0.52	0	
US	0.4	0.3	0.5	5.6	0.7

PAKISTAN

Economic Aid Disbursements from Selected Donors 1977-1981
(Millions of US Dollars)

	1977	1978	1979	1980	1981
France	32.9	26.1	16.0	16.1	
West Germany	84.4	90.4	33.9	70.4	
Italy	13.9	11.8	2.6	0	
Japan	50.6	73.4	184.3	132.8	
UK	45.1	34.9	58.8	51.5	
US	104.3	60.8	44.9	72.7	79.3

SAUDI ARABIA

Economic Aid Disbursements from Selected Donors 1977-1981
(Millions of US Dollars)

	1977	1978	1979	1980	1981
France	0	0	0	1.55	
West Germany	1.40	0.29	0.50	1.02	
Italy	0.04	0.04	0.06	0.06	
Japan	0.46	1.58	5.88	5.92	
UK	0.06	0.07	0.01	0	
US	----	----	----	----	----

SOMALIA

Economic Aid Disbursements from Selected Donors 1977-1981
(Millions of US Dollars)

	1977	1978	1979	1980	1981
France	0	0	0	1.6	
West Germany	7.0	20.7	11.0	67.0	
Italy	8.5	8.1	7.7	27.4	
Japan	0	0.1	0.2	0.4	
UK	0.3	1.9	2.8	6.7	
US	0.6	16.6	26.3	62.9	57.0

SUDAN

Economic Aid Disbursements from Selected Donors 1977-1981
(Millions of US Dollars)

	1977	1978	1979	1980	1981
France	0	0	1.2	7.7	
West Germany	15.4	38.2	41.5	206.0	
Italy	0.5	0.5	1.1	0.2	
Japan	2.0	23.2	21.5	10.9	
UK	8.8	13.6	29.5	50.8	
US	6.6	19.8	37.5	96.6	109.4

US Military Assistance: Country Programs*
(Millions of Dollars)

	FY1977	FY1978	FY1979	FY1980	FY1981
Egypt	--	.2	1500.4	.8	550.8
Kenya	15.2	27.4	10.4	20.5	6.5
Oman	--	--	--	25.0	25.0
Pakistan	.3	.6	.5	--	--
Saudi Arabia	--	--	--	--	--
Somalia	--	--	--	20.0	20.4
Sudan	.1	.3	5.3	25.4	32.3

* Includes: FMSCR, IMET, MAP and transfers from excess defense stocks

QUESTIONS SUBMITTED BY SENATOR STENNIS

NATO Allies and Defense of the Persian Gulf Area

QUESTION: Secretary Carlucci, your statement mentions the need for the NATO Allies to contribute to the defense of the Persian Gulf area. Do you foresee any possibility of success of your efforts at this time?

ANSWER: Although we are pursuing efforts to increase the contributions of our NATO Allies, they can, and do, contribute in many different ways to the defense of the Persian Gulf and Southwest Asia (SWA) area on a unilateral basis, in a bilateral nature, and within the NATO context.

On a unilateral basis, the French and the UK provide a peacetime naval presence in the area. Various nations provide economic assistance and security assistance, and have longstanding diplomatic ties with nations of the region that enhance stability.

In a bilateral nature, we are working with European nations on the provision of en route access and overflight rights in times of crisis should the US be required to deploy to the region. We are also encouraging them to increase economic, security, and technical assistance to key countries in SWA to encourage economic growth, political stability and social improvements.

In a NATO context, we have many initiatives underway in the area of compensation efforts to offset US forces that might not be available for NATO reinforcement because of a crisis in SWA or elsewhere. We are specifically looking at strategic mobility compensation to include the use of European airlift and sealift support for reinforcement forces, as well as, additional European Combat Support and Combat Service Support units.

We are continuing to study with our NATO Allies the problems that would be associated with a crisis in SWA and the need to deploy forces there. Options are undergoing review, and, although the NATO process is slow, we do foresee success in some of our efforts. Through analysis, continued dialogue, and increased awareness and understanding of the Soviet and other threats to the SWA area, we feel confident that progress can be made regarding increased Allied contributions that will lead to better protection of our common interests in the Persian Gulf area.

RAPID DEPLOYMENT FORCE

QUESTION: Your statement mentions South Korea's devoting six percent of its GNP to defense -- approximately the same as the United States. What percentage does Japan contribute — and would this have to be increased to provide the assets for extension of its self-defense responsibilities out to 1,000 miles from Japan?

ANSWER: Although Japan's defense budget is over twice as great as the ROK's, Japan's GNP is so large that the defense budget is only 0.93 percent of GNP. Unless the GNP grew at levels greater than the Japanese expect, the percentage to achieve 1,000 mile sea-lane defense capability would likely have to increase in order to achieve that goal.

QUESTION: Will the United States be able to reduce its defense assets in the area of Japan when this self-defense extension becomes a reality?

ANSWER: Since U.S. Forces in Japan are not located there to protect Japan alone but primarily maintain the U.S. base structure which supports U.S. commitments throughout the Far East inside and beyond 1,000 miles, U.S. reductions are unlikely. Both the U.S. and Japan need to increase capabilities although U.S. increases could concentrate outside the 1,000 miles if Japan were capable of defending that area.

QUESTION: When do you project that Japan will have the capability to assume this additional responsibility?

ANSWER: The U.S. would like to see Japan achieve the capability to be able to defend its sea-lanes to 1,000 miles within this decade. At present we cannot project when Japan will achieve that capability but its 1983-1987 defense plan is expected to be finalized this year. That should provide some indication.

Joint Military Commissions

QUESTION: Your statement refers to the establishment of joint military review procedures with Morocco, Tunisa, Egypt, Jordan and Saudi Arabia. Just what is entailed under these procedures?

ANSWER: This Administration has established a number of Joint Military Commissions to strengthen our bilateral security relations with friendly countries in the Middle East and North Africa. These commissions promote cooperation and coordination of military matters of mutual interest to the countries involved. They provide a forum in which problems can be raised and a wide-range of topics discussed -- from the quality of ammunition to broad questions of strategy and policy. The commission sessions also serve as a springboard for further exchanges on subjects such as follow-up assistance requests and joint military exercises.

Pakistan

QUESTION: General Zia, the President of Pakistan, recently disclosed that the United States offered to station troops and equipment in his country, but he rejected the offer. This offer was supposed to have been made last year and was not linked to the rapid deployment force for the Middle East. What can you tell us about this offer?

Isn't it true that, in the past, both the United States and Pakistan have rejected suggestions that U.S. troops be stationed in Pakistan due to its proximity to Afghanistan? What changed to make this offer feasible?

ANSWER: The Government of Pakistan has stated that General Zia's remarks were reported inaccurately. The United States has not sought bases in Pakistan, nor offered to station troops and equipment there. The objective of the U.S. security assistance program is to increase Pakistan's ability to meet its defense needs with its own forces.

PERSHING II

Question: There have been some indications that the United States is willing to sell a reduced-range version of the PERSHING II missile to West Germany. This missile could be armed with either a nuclear or conventional warhead. Is it possible that sales of weapons such as these missiles could allow for a reduction of American troops committed and stationed in NATO countries?

Answer: There are no known technological achievements in weapon systems such as PERSHING II which can substitute for US combat troops in place in Europe. The current inbalance of standing conventional forces in Europe favors the Warsaw Pact. Decreasing the level of NATO standing forces will only increase the risk of successfully holding in the forward combat area while reinforcements are brought in from the United States and other NATO countries.

NORWAY PREPOSITIONING

Question: Norway has long been recognized as one of NATO's strategically vital areas. There has been a Memorandum of Understanding signed between Norway and the United States covering prepositioning of a Marine Brigade set of equipment in Norway. This raises a number of questions--such as what are the implications of prepositioning the equipment and supplies in Norway if Marine units are deployed to other contingency areas?

Answer: There would be a limited impact on Marine Corps readiness in that the ammunition and POL supplies are coming out of Marine Corps resources which are available for world-wide contingencies. Equipment being prepositioned is additive to current Marine stocks so it would have no impact.

Question: In this circumstance, what forces would be made available to use the Norway prepositioned equipment in the event troops are required?

Answer: The equipment and supplies being prestocked are common user items which many of our NATO allies or US Army forces could use. SACEUR would have to designate forces from his reserves to reinforce Norway if the Marines were committed elsewhere.

PREPOSITIONED EQUIPMENT

QUESTION: Is it the Department's plan to preposition equipment in other possible contingency areas, such as NATO's southern flank or Korea?

ANSWER: Prepositioned equipment in overseas areas materially reduces airlift requirements in the event of a contingency.

(Deleted.)

NORWAY PREPOSITIONING

Question: Were other alternatives to the Norway prepositioning considered? These would include use of rapid sealift ships or prepositioning in a more central European country. If these other alternatives were considered, what elements were paramount in selection of Norway as the prepositioning site?

Answer: A number of alternatives to the Norway prepositioning including the ones mentioned were considered by Department of Defense. The key factors which influenced the decision were costs; response time required to move forces to Norway, marry up with their equipment and deploy to the North; and, political significance of the agreement. (Deleted.)

Question: The cost of prepositioning in Norway over a five-year period has increased from a Fiscal Year 1981 estimate to over $200 million today. What factors have led to this cost growth?

Answer: The $77 million figure given by USMC Commandant General Barrow in Congressional Testimony, as a Fiscal Year 1981 estimated cost of the prepositioning program in Norway, was misinterpreted. Department of Defense and the Marine Corps regarded that figure as comprising only "start-up" costs through FY1983. The total Marine Corps prepositioning program costs were defined for the first time during development of POM 83, (deleted) Program costs have since been reduced by (deleted) as a result of DoD guidance to the USMC to take ammunition funds out of those already programmed for purchase of War Reserve Stocks.

Question: Please provide for the record the current five-year projections by Procurement and Operation and Maintenance Appropriations requirements.

Answer: Current FY1983-87 projected procurement requirements for end-items is (deleted). Operations and maintenance requirements are (deleted) which includes the cost of moving the equipment and ammunition to Norway. As indicated in a previous response to prepositioning costs, these figures do not represent the entire program.

Question: For a number of years, there was a waiver in the General Provisions of the Defense Appropriations Act which allowed the Secretary of Defense to procure specialty metals from foreign sources for the purpose of offsetting U.S. sales or furthering NATO rationalization, standardization, and interoperability. This was a waiver to the so-called "Buy American" provision and the waiver was terminated by the Fiscal Year 1982 Defense Appropriation Act. The Senate version of the Fiscal Year 1983 Defense Authorization Bill proposes to reinstate the waiver. I would like your opinion of this issue -- are we to be primarily concerned with the need to maintain a viable specialty metals industry in the United States or should we be primarily concerned with the political perception among our allies relative to the "Buy American" restriction?

Answer: The Department of Defense either directly or through its contractors uses a maximum of 4% of the specialty metals produced. Thus, the viability of the Specialty Metals Industry in the U.S. depends almost entirely on its success in the commercial marketplace. Our primary concern is with the political perception among our allies relative to the "Buy American" restriction.

Politically, section 723 would prove a disaster to the U.S. in its dealings not only within NATO but with Switzerland and Australia as well. Section 723 unfortunately gives a clear perception to our allies that we are all for standardization and interoperability except where it might have local economic consequences. The restrictions reinstated by section 723 put the Ministries of Defense of our Allies in an untenable position when they attempt to justify to their parliaments the acquisition of U.S.-developed defense equipment.

Our allies have accepted the fact that the U.S. generally requires that major weapons systems and subsystems must be built in the U.S. in order to retain a mobilization base capability. Thus, alliance industry's participation in the U.S. defense market is limited. Nevertheless, our reciprocal defense trade agreements are still a powerful incentive for the alliance members to buy U.S. defense systems. We expect that the balance of defense trade will almost always be in our favor if we are able to operate in our current trade environment. Unfortunately, recent "Buy American" type restrictions that have appeared in the Fiscal Year 1982 Defense Appropriations Bill are creating an unfavorable climate in Europe for the continuation of this favorable trade balance.

Question: Is it true that the United States continues to have a large advantage over the NATO alliance in terms of balance of trade in procurement of defense equipment?

Answer: Yes. We have estimated that during Fiscal Year 1980 U.S. industry delivered approximately $1.9 billion in defense equipment to our European NATO allies. Industry located in European NATO countries delivered approximately $195.3 million in defense equipment to us or a 9.4:1 advantage.

Question: Does this trend in balance of trade continue upward in favor of the United States?

Answer: Taking into consideration the potential future sales to European NATO including the sale of the Trident D-5 to the United Kingdom, we have good reason to believe that the United States will continue to have a large and increasing advantage over the alliance in terms of balance of trade in the procurement of defense equipment.

SUBCOMMITTEE RECESS

Senator **Stevens**. The subcommittee will stand in recess until Thursday, April 22, at 9 a.m., when we will hear testimony on NATO commitments.

As I indicated, if that hearing extends beyond noon, we will continue it on Friday.

[Whereupon, at 11:40 a.m., the subcommittee was recessed, to reconvene at 9 a.m., Thursday, April 22.]

DEPARTMENT OF DEFENSE APPROPRIATIONS FOR FISCAL YEAR 1983

THURSDAY, APRIL 22, 1982

U.S. SENATE,
SUBCOMMITTEE OF THE COMMITTEE ON APPROPRIATIONS,
Washington, D.C.

The subcommittee met at 9:15 a.m., in room 1224, Everett McKinley Dirksen Senate Office Building, Hon. Ted Stevens (chairman) presiding.

Present: Senators Stevens, Andrews, Rudman, Stennis, and Johnston.

DEPARTMENT OF DEFENSE

ASSISTANT SECRETARY OF DEFENSE FOR INTERNATIONAL SECURITY POLICY

STATEMENT OF HON. RICHARD N. PERLE, ASSISTANT SECRETARY OF DEFENSE FOR INTERNATIONAL SECURITY POLICY

ACCOMPANIED BY:

- **GEN. WILLIAM Y. SMITH, USAF, DEPUTY COMMANDER IN CHIEF, UNITED STATES EUROPEAN COMMAND**
- **BRIG. GEN. PETER M. DAWKINS, USA, DEPUTY DIRECTOR FOR STRATEGY, PLANS AND POLICY.**

U.S. GLOBAL MILITARY COMMITMENTS (NATO)

MAINTENANCE OF CONVENTIONAL FORCES IN EUROPE

Senator STEVENS. Good morning.

We are here for our second day of hearings on our global military commitments. Today the subject is NATO, particularly why we should continue to maintain and even increase our conventional forces in Europe at a time when both military and economic evidence indicates our NATO allies are clearly in a position to do more for their own defense.

Thirty years ago, when President Truman took the unprecedented step of sending large numbers of U.S. forces to Europe in peacetime to bolster our European allies, he touched off a row in Congress. The upshot of that great debate was Senate Resolution 99, which approved the President's action but also expressed the belief of the Senate that our European allies in NATO should make their fair and substantial contribution to the allied defense efforts. It also stated that the Senate should be fully consulted and involved in any subsequent decision by the United States affecting defense steps for the protection of Western Europe.

At the outset, it is clear that the United States never intended to continue with so much of Europe's conventional defense burden. However, in the intervening years we have seen only slight fluctuations in our troop levels.

Following the first of the Mansfield resolutions in 1966, some troops were redeployed here in this country, but more recent changes were mostly in the area of tooth-to-tail ratios: substituting combat troops for support troops.

Since January 1975, we have increased our forces deployed in Europe by 37,000. In fiscal years 1982 and 1983, we have learned that Congress has been asked to fund another 21,000 troops within the defense budgets for deployment to Europe.

Yesterday we heard several witnesses raise some fundamental questions about our worldwide commitments. It was estimated that just to maintain our current force levels worldwide—without improving readiness and sustainability—we would soon have to spend more than 7.5 percent of our gross national product annually to support defense. This is a level I do not believe we can afford at this time.

An essential part of the administration's defense policy is reliance on our allies to bear their fair share of the common defense burden. We have not been convinced from what we have read or heard that there has been any real progress in achieving the goal of a more rational division of labor between the United States and its allies, a development that will have long-term and damaging implications for the U.S. budget.

INTRODUCTION OF WITNESSES

Today we have Assistant Secretary Richard Perle and Gen. William Smith to present the administration's position on our NATO commitments. We will also hear from two outside witnesses—Ambassador Robert Komer on NATO and Robert Pfaltzgraff of the Institute for Foreign Policy Analysis, on Japan and our other Asian commitments.

Brig. Gen. Peter M. Dawkins, U.S. Army, Deputy Director for Strategy, Plans and Policy, Department of the Army, is here also.

Welcome to the committee. We will be pleased if you will identify any of your assistants if you call on them for testimony.

Mr. Perle, we will be pleased if you will summarize your statement. All statements will be printed in the record. I delayed the hearing because I thought there was one other Senator on his way, but he has not arrived, so we will proceed.

STRENGTHS IN NATO ALLIANCE

Mr. **Perle**. Thank you very much, Mr. Chairman.

I am pleased to have this opportunity to testify before you this morning to express the importance that the administration attaches to the strength and cohesiveness of the NATO alliance.

I won't summarize my opening statement as such, but I would like to make a couple of points by way of introduction.

It is our view, as it has been the view of a succession of administrations, that it is very much in the interest of the United States to join together with our friends and allies, in particular our allies in Europe, in order to better provide for the security of the United States by defending it as far forward as possible on the Eurasian land mass where our principal adversary has its forces.

The military threat to the alliance has been growing, consistently, as a consequence of massive Soviet investment in military power.

It is extraordinarily difficult to make the computations involved in estimating the cost to the United States, indeed to the alliance as a whole, of meeting our defense requirements through our chosen strategy of forward defense, but we remain convinced that providing the security of this country by some other strategy would inevitably entail costs greater than those now dedicated to that defense.

ALLIES CONTRIBUTION TO NATO DEFENSE

We are not entirely happy with the performance of our NATO allies, and we are engaged in a continuous dialog with each and every one of them and with the alliance as a whole, collectively, at ministerial sessions. The central theme of this dialog has been to urge higher levels of defense investment and greater interaction in the defense planning process. We will continue to make that effort.

I think it is fair to observe that the performance of any country within the alliance tends to vary from one year to the next. There have been periods in which our own defense effort was marked by a real decline. Now, with the support and cooperation of the Congress, the administration expects significant real increases, real increases necessary to redress the imbalance that developed over a decade or more in which we failed to do enough.

Today there are some NATO allies who are failing to do enough. I think it may not be too far from a useful analogy to suggest that an alliance resembles a group of mountain climbers tied together with a rope, so that if anyone slips the others are able to keep him from catastrophe.

From time to time there will be slippages, and I think we will have to face up to that. I am not here to defend the slippages. We are constantly looking for ways to elicit a higher level of performance. We are involved at this moment in negotiations with a number of countries aimed at producing specific agreements that would have the effect of increasing the overall capability of the alliance. I can assure you that we intend to go on doing that.

WEST GERMAN CONTRIBUTION TO NATO EFFORT

If I might take one of the most recent examples, because it is a negotiation that was consummated in the signing ceremony just a few days ago: After a significant period of urging the onset of negotiations and then a negotiating period, we signed about a week ago with the German Government an agreement under which some 93,000 German reservists would be made available in wartime to perform combat service support missions.

The United States and the Federal Republic of Germany will share the costs of that effort and we believe it will greatly strengthen the capacity of the alliance on the central front without requiring the movement to Europe of additional support personnel.

This is an example of the sort of cooperative arrangements that we are attempting to negotiate and indeed have negotiated with some other countries. It is an example of a constructive approach to solving what we recognize as a very real problem.

If I may conclude these opening remarks by making one observation about the general political climate in which these questions of defense burden-sharing and defense effort ought to be viewed.

DÉTENTE THEORY

Beginning in the early 1970's and for some years thereafter, the United States was the principal spokesman for a notion of international politics called détente. We borrowed the word from the French, but the concept was very much American. According to détente, improved relations with the Soviet Union could be achieved through negotiation and the defense burden on the West would thereby be reduced, and the security of the United States and its allies thereby increased.

I hardly need say what a disappointment that theory of détente turned out to be. It did not ameliorate Soviet behavior in the world, which continued to be, as it is today, aggressive and ambitious. It did not produce a decline in Soviet defense investment. On the contrary, there was a steady increase during the whole of that period, but it did have the effect of leading citizens in all of the democracies of the West to conclude that we could relax our efforts.

Indeed, the word "détente" means relaxation.

I believe it was an unsound notion then; it is unsound today; it is not the policy of this administration. While we prefer wherever there are practical ways of doing so to improve the relations with the Soviet Union, we harbor no illusions that this can be done quickly, and we certainly believe it cannot be done unless we maintain a significant defense effort.

Much of what I believe we see today in those countries that are not adequately supporting necessary defense efforts flows from the climate that was engendered by that policy of détente. I hope that we will be successful in collectively returning to reality and facing up to the magnitude of the effort that has to be made on behalf of our collective defense.

Thank you.

[The prepared statement of Mr. Perle follows:]

PREPARED STATEMENT OF RICHARD N. PERLE

ASSISTANT SECRETARY OF DEFENSE FOR INTERNATIONAL SECURITY POLICY

Mr. Chairman:

I am pleased to appear before the Subcommittee this morning to discuss US commitments in the North Atlantic Treaty area.

Twice in this century, Americans have fought and died on battlefields in Europe in order to protect the vital interests of the United States and to restore the peace and independence of friends and allies with whom we share common traditions and values. This interest is equally strong today, transcending whatever political differences may periodically arise among the members of the Western community. The threat to freedom posed by increasing Soviet military power makes it essential to our interests that the United States continue to help ensure the security of the North Atlantic Treaty area.

The military threat to the alliance, we believe, is greater today than at any point in its history. Soviet military power continues to grow in virtually all categories of weapon systems. Since the mid-1960's, the USSR has nearly doubled real defense spending, more than doubled research and development, and increased military manpower by over 30%. The Soviet Union is producing new systems today at production rates that will allow them to maintain this momentum far into the future. It would be dangerously naive to expect the Soviet Union, if it once achieves clear military superiority, not to try to exploit that capability even more fully than at present.

Deputy Secretary of Defense Carlucci has already testified on US global commitments; General Smith and I have been asked to discuss US commitments to NATO. I want to state clearly at the outset, however, that the commitments of the United States have been made consciously and deliberately in the interest of US national defense -- not just to help defend our Allies and friends -- and have been reaffirmed by successive administrations. This Administration believes firmly in the concept of collective defense, without which US national security could only be assured with great difficulty and at so high a cost the liberties and the way of life we seek to protect would be at serious risk.

Mr. Chairman, I am often asked how much our commitment to defend Europe costs the United States: is it $80 billion or $120 billion annually? I submit, Sir, any quantitative answer is at best meaningless and at worst misleading. Almost none of our armed forces, except those in place in Europe, are focused solely on European defense. On the other hand, virtually all of our standing forces -- and the reserve forces, as well -- probably would be involved in any war that included a large-scale Eastern attack on any of our NATO allies.

What one should ask is how much less our present collective security costs than the alternative of "going it alone." Here, several factors need to be considered:

- In 1981, our European allies and Canada spent nearly $128 billion on defense -- virtually all of it within the North Atlantic Treaty area.

- Our NATO allies maintain on active duty some 3 million men, 60% of the Alliance's total peacetime manpower strength. This level would be doubled on mobilization.

- Our NATO allies contribute 90% of NATO's peacetime ground forces, 75% of the air forces and 80% of the naval forces in Europe.

- Even 30 days after mobilization, we anticipate that our European allies would have 75% of the ground and 50% of the air forces in Europe.

Were it not for this considerable contribution of our NATO allies to the common defense, it is clear that US defense costs to protect US vital interests would have to grow significantly, and our manpower needs would increase sharply.

Coalition or "common" defense is not always easy politically, but it is unquestionably less costly for all allies than "going it alone."

Just as the allied defense effort complements our own and permits a higher level of collective defense at a more affordable cost, the forward stationing of US ground and air forces in Europe makes possible a more credible conventional defense of NATO's most vital exposed area and provides the critical demonstration of US commitment to the defense of NATO. Integral to this commitment are the nuclear capabilites of these forces which, along with the nuclear forces deployed by our allies, provide the crucial link in the spectrum of deterrence between conventional forces at one end and the ultimate deterrent, the US central strategic forces, at the other. However, credible deterrence in Europe cannot rest solely on the US nuclear shield, as vital as it is. The Alliance nuclear potential must be coupled with effective conventional forces. US ground and air forces in Europe are an essential component of a credible conventional defense which serves to raise the level of confrontation at which we would have to decide whether to employ our nuclear weapons.

Soviet forces are so configured and deployed that warning of an attack against Western Europe could be ambiguous and warning time short. A short NATO response time is therefore essential. We are prepositioning equipment so that US forces can reinforce promptly in a crisis, but there simply is no substitute for the combat troops we maintain in Europe. To withdraw or "thin out" these forces unilaterally makes no military or political sense.

Our force structure in place in Europe is currently sized so that we, in concert with our allies, can counter a short notice threat from standing Warsaw Pact forces to assure time to mobilize and deploy reserve forces. US troop withdrawals would strain to the breaking point our capability to redeploy necessary forces in an emergency. They would add massive problems that currently programmed airlift, sealift, and reception facilities simply could not meet. The added one-time costs of redeploying these forces to the US and the recurring costs of sending them to Europe for training and emergencies would be prohibitive.

Finally, any unilateral withdrawal of US troops from Europe would be seen by both allies and potential adversaries as a weakening of US commitments. It would be welcomed by the Soviet Union and could split the US from Europe. Our reduced commitment would be perceived as a relinquishment of Western leadership. It would not stimulate increased defense efforts by our allies, but would more likely have the opposite effect. US abilities to exert influence with allies on political, military and economic issues would be impaired.

There is no question that much more needs to be done militarily by us all. This Administration has embarked on a bold and long-overdue strengthening of our military forces designed to halt the growing East-West imbalance in key defense fields. We have pressed our allies to join us in this endeavor and, while a number of our partners have responded well, their overall performance has been uneven and clearly needs improvement.

It is important that all the partners also share equitably in both the benefits of collective security and the costs of this common defense. NATO and its member nations need to look closely at this issue, as the time is well past when the allies could "plead poverty" with any justification. Last year the US ranked eighth among NATO countries in per capita Gross Domestic Product.

In each of the last two years, the Department of Defense has prepared a report for the Congress on allied contributions to the common defense. You all have seen that report. In it we have tried to develop a number of measures of national effort and to take fully into account both quantifiable and non-quantifiable national contributions.

When numerous non-quantifiable factors are considered, we believe the European allies in aggregate are making a generally equitable contribution to the alliance. Individual inequities need to be redressed, and we are pressing several countries to increase their contributions. We are also concerned that the recent increases in US defense spending, if not matched by the allies, will cause a reversal of the steady trend in recent years toward a growing equity in burdensharing among the NATO partners.

I want to conclude by saying a few words about host nation support, one of the key concepts recently developed to enhance burdensharing within the Alliance. Here, we have been working with several key Central Region allies to ensure such support.

US forces are the single most important source of NATO reinforcements and we have been striving for several years to improve our capability to reinforce Europe rapidly in an emergency. However, we have critical shortages in combat service support units and insufficient strategic lift to move them in a contingency. To solve this problem, we have sought host nation support.

In the fall of last year, arrangements were reached with the UK and the Benelux countries for increased support during wartime. This would cover such things as transportation, materials handling, communications, medical, billeting, etc., and would be mobilized from the civilian sector during an emergency and be dedicated support for US forces.

In Germany, however, employment of mobilized civilians in the combat zone is not a satisfactory solution. The German Government therefore developed a proposal to activate German reservists to perform combat service support for support of US forces. We have been negotiating the details of this arrangement for some time, and I am happy to report that the agreement was signed with the German Government last week. It provides for 93,000 German reservists in wartime and the necessary training, and command and control in peacetime to provide an effective force. Costs of this initiative are significant, but they are only about one-tenth of what it would cost to provide the same capability with US reserve component personnel or one-200th of what it would cost to add the airlift capability to move that force to Europe. Moreover, the German Government is paying over 50% of the costs involved.

Out-of-area threats to alliance interests is another important cooperative area on which we are working with our NATO allies. Most of the forces which would be assigned to the Rapid Deployment Force in the event of a deployment to Southwest Asia would otherwise be reinforcements for NATO Europe. NATO is presently studying the impact of such a diversion of US forces in order to identify ways in which our NATO allies could develop compensatory measures.

Finally, we have entered discussions with the German Government on the Master Restationing Plan (MRP). At the initial meeting in March, the conferees agreed to form a joint "Committee of Experts" to identify areas of agreement and disagreement and to develop potential alternatives for review. The group of experts is meeting in Bonn this week. The German attitude toward this initiative has been highly positive. Although we expect the process to be lengthy, we are optimistic about its success.

Mr. Chairman, this concludes my statement.

STATEMENT OF GEN. WILLIAM Y. SMITH

U.S. INTERDEPENDENCE WITH NATO NATIONS

Senator STEVENS. General Smith.

General SMITH. Mr. Chairman, General Rogers regrets very much that he was unable to be here today, but he had a commitment in his role as Supreme Allied Commander in Europe and regrets very much his absence.

I am honored and pleased to have this opportunity to discuss this very important issue with you. Since I have submitted my statement for the record, I would just like to summarize briefly some major points that I think should be kept in mind as we proceed with this very important discussion.

The first point is that the U.S. military forces are in Europe to protect the U.S. vital interests and not just the interests of the European governments or the European people. We have learned by history, we have learned by our common cultural ties, we have learned by our commerce with the European nations how interdependent we are and how close our alliance must be.

We also share the democratic values that we want to nourish and help encourage in other parts of the world.

The second point I would make is that the allies are making a contribution to NATO military power. I do not think they are doing enough. I think they should do more.

As Mr. Perle pointed out, we are trying to find ways to encourage them to do more through responsible leadership. I think the example that the United States has set in recent years in increasing our defense budget will have a positive effect on our European allies.

I will not rehearse for you the figures of other contributions, but I am sure that they are substantial.

I would remind you that Germany has one-third of NATO's ground power on its soil, in a territory about the size of the State of Oregon. So, they are paying a large price in terms of military presence on their soil. They know war; they remember war; they don't want another war. They know the way to avoid it is through our policy of deterrence and they know the only way we can deter a possible attack is to have strong military forces that are ready to defend, should the West be attacked.

HOST NATION SUPPORT AGREEMENT

The next point I would like to make is that the allies do recognize the importance of the United States' presence in Europe; that is shown in a number of ways. Mr. Perle mentioned one, the most recent example—the wartime host nation support agreement just signed with the Republic of Germany, which is a very important step forward.

Another example is that the West German Government has recently expressed its willingness to discuss the U.S. Army's Master Restationing Plan. Those discussions are going to be difficult, they are going to be arduous, but there is no disagreement over the need. There must be discussion on how to go about that very important step.

INFRASTRUCTURE PROGRAM

Another example, I will remind you, is the NATO Infrastructure program, from which the United States continues to enjoy substantial benefits. A recent study by the House Appropriations Committee shows that from 1972 to 1978 the United States got about 40 percent of all the projects programed for use by NATO forces, and during that time we contributed only a little over 27 percent of the resources to the Infrastructure program.

With the new reinforcement support category, the United States may benefit as much as 50 percent from those funds going into the Infrastructure program.

Now, the effective contribution to the NATO Infrastructure program by our allies is even larger because they must furnish the land, access roads to various sites, access for the utilities. Those costs amount to another 13 percent of the total cost.

The next point I would make is that there is a sign of unease and uncertainty on both sides of the Atlantic today. There have been recently, in Germany particularly but in other nations as well, some peace demonstrations, but all the polls show that the Europeans remain firmly in support of the United States and in support of NATO. During my visits with our forces throughout Germany when I ask the question, "How are the relations with the local population?" they say "Never better." It takes work by both sides, but the relations are good and we are enjoying excellent support from the communities that surround our military bases.

U.S. FORCE WITHDRAWAL FROM EUROPE NOT FEASIBLE

The final point I would like to make is that now is not the time to withdraw major elements of U.S. forces in Europe. If we did that, it would place increased requirements for deterrence on nuclear forces when the objective that we are seeking is to increase reliance on conventional forces. It would create the impression among some groups in Europe who are at this point not totally supportive of the United States that they can dictate U.S. security policy. It could lead to unraveling of the alliance when more, rather than less, military capability and political cohesion are needed. It would move the Soviets down the road toward their objective of domination of Western Europe without any increased efforts or increased on their part and would be counter to U.S. vital interests. Thank you very much.

[The prepared statement of General Smith follows:]

PREPARED STATEMENT OF GEN. WILLIAM Y. SMITH, USAF

DEPUTY COMMANDER-IN-CHIEF

UNITED STATES EUROPEAN COMMAND

MR. CHAIRMAN AND MEMBERS OF THE SUBCOMMITTEE

General Rogers regrets very much his absence today. He is with the Norwegian Chief of Defense who is visiting General Rogers' NATO Command, the Allied Command Europe--a visit which has been planned for over a year. I consider it an honor and an important opportunity to meet with you on General Rogers' behalf.

These hearings come at a critical time in the history of U.S. relations with our NATO Allies. Once again, tensions seem to be rising--in East-West relations, among the Allied members of NATO and internally within the western countries themselves. An expression of these tensions within the U.S. has been the renewed proposal to remove U.S. troops from Europe unilaterally.

U.S. Forces in Europe Protect U.S. Interests

U.S. military forces are in Europe to protect vital U.S. interests, not just the security of West Europeans. The economic, industrial and technological capabilities of Western Europe, and their potential for further growth are essential to the kind of world of which the U.S. is a part, and has historically dedicated its blood and treasure to preserve:

(1) A world in which Western Democratic traditions and concepts can flourish;

(2) A world of free commerce;

(3) And a world in which conflicts are resolved peacefully.

Our cultural and historical ties with Europe are strong and pervasive. The Democratic values we share with European people are furthered by common commitments to the defense of the liberty and rights of the individual. The survival of these values is nourished by the democratic climate of Europe and North America, and preserving that climate is a vital U.S. interest.

The nations of NATO are essential participants in the international economic system. Collectively, our European NATO Allies have an aggregate gross domestic product greater than that of the U.S. They represent a very important market for U.S. exports and, in fact, are one of the largest markets for U.S. agricultural exports, which remain a vital part of the U.S. economy. Protecting our role in active commerce with Western Europe is in our long-range national interest.

Our NATO Allies share our belief that international conflicts should be resolved peacefully. Their commitment to the balanced limitation of strategic and intermediate range nuclear weapons, and their commitment to mutual, balanced NATO and Warsaw Pact reductions of conventional forces have been an essential element in the overall Western efforts to achieve enhanced security at reduced levels of armaments. Recently, the West Germans took the initiative to develop a Western position that could begin movement again on the stalled MBFR negotiations. But at the same time they remain committed, as staunch Allies, to the maintenance of the necessary deterrent force posture in the face of the Eastern threat.

Allied Military Contributions

The military capabilities of our European Allies add markedly to NATO military power at a time when the U.S. and its Allies face a difficult period in relation to the Soviet Union and the Warsaw Pact. The NATO Alliance is founded on the principle that all of the sovereign member democracies are interdependent. In short, we all need each other.

Even though most NATO Allies are small in size, when joined together the Alliance presents a powerful deterrent to aggression from the East. The average population of the European Allied nations is about 25 million each--about the same size as that of the combined metropolitan areas of New York and Los Angeles. The total combined populations of all our European Allies is not quite 50 percent larger than our own, yet joined together these nations provide about two-thirds of the NATO defense manpower (Active, Reserve, and Defense Civilian). Moreover, most European Allies draft personnel for military service and, through this, maintain as well large pools of available manpower with recent military training.

Furthermore, our European Allies as a group, maintain and train their military forces--and host ours also--in an area one-fourth the size of the U.S. In particular, Germany carries a heavy share of this burden--about one-third of NATO's ground combat power is maintained by the Allies on German soil, although West Germany is barely the size of the State of Oregon.

In World War I and II, our European Allies suffered the ravages of war in their own lands. Should the NATO deterrent ever fail, these nations would once again become battlefields in the first line of defense for all of the Alliance. The risk to them is unequivocal.

With this specter ever before them, the European Allies by and large have maintained and improved their defenses very credibly, especially over the past decade. Among the more visible Allied achievements have been broad increases in anti-armor weapon systems and units; modernized tactical combat aircraft programs such as the TORNADO and the F-16; modernized tank programs such as the German LEOPARD-2 and the British CHALLENGER; conversion of infantry units to more capable mechanized units; and, installation of anti-ship missile systems on most naval ships and patrol craft.

These facts of defense performance are borne out by the data on the money input side of the defense equation--our European partners increased their real defense spending by almost 20 percent in the 10 years from 1971 through 1980. Regrettably, our own defense spending declined by over 11 percent during this same period; this decline was only reversed subsequent to adoption of the 3 percent goal in 1978.

Other examples of Allied contributions include official commitments to and support for NATO programs. Commitments by the West German, British and Italian Governments to the deployment of Ground Launched Cruise Missiles provide concrete support for NATO programs to modernize intermediate range nuclear forces. Dutch commitments to rail movement of ammunition from new port facilities support NATO efforts to improve sustainability. This official governmental support has been maintained in the face of highly visible and vocal--but minority--opposition within the countries concerned; willingness to face that opposition demonstrates a continuing West European commitment to the Alliance.

Most of our European Allies have defense programs that have been improving consistently, and the U.S. has now reasserted its leadership in providing an improved NATO deterrent. However, these improvements do not mean that all of the problems and deficiencies of our Allied Forces have been overcome. NATO has made significant progress, but, clearly, there is much more to be done by all because the growth of the threat to the West has been outpacing collective NATO efforts.

NATO Allies Recognize Importance of U.S. Presence

Our NATO Allies recognize the critical importance of continuing U.S. military presence in Europe. They have taken--and continue to take--steps to ease the burden on the U.S. of maintaining forward deployed forces.

One important example is the Wartime Host Nation Support Agreement just signed between the U.S. and the Federal Republic of Germany. That agreement calls for the formation of a force of ninety-three thousand German Reservists to provide essential combat support and combat service support for reinforcing U.S. Forces during times of tension or war. Under this agreement, the Germans will be providing transportation and materials handling, airfield damage repair, resupply, airbase and Army installation security, chemical decontamination, prisoner-of-war handling, labor services, medical evacuation and support for U.S. Air Force collocated operating bases.

Another example is West German willingness to discuss the U.S. Army's Master Restationing Plan for relocating in-place U.S. Army Forces closer to their wartime defensive positions. These discussions will be complex and arduous, not because of U.S. and German disagreement over the need for the MRP, but because of the need to make difficult choices over how to spend scarce resources.

In the NATO Infrastructure Program, the U.S. continues to enjoy substantial benefits. A recent study for the House Appropriations Committee concluded that for the years 1972 through 1978 projects for U.S. use amounted to 41.36 percent of all projects programmed for use by national forces. This category excludes facilities used in common by all NATO nations, facilities which would have required common funding in any case. During this same period, U.S. financial contribution to the Infrastructure Program remained at 27.4 percent of the entire program. With the new "Reinforcement Support Category" of projects, the U.S. share could conceivably increase to about 50 percent of the total national projects through 1984. The effective contribution of European Allies is actually larger than these formal figures indicate, since the Host Nation for each Infrastructure Project supplies the land, access roads to the site and access for utilities at no cost to NATO. These initial costs are estimated at about 13 percent of the total cost for a large, new facility.

Signs of Unease and Uncertainty in Europe Today

There are signs of unease and uncertainty in Western Europe today, manifested by recent "peace" demonstrations. But polls show that the overwhelming majority of West Europeans are still very friendly to the U.S. and very supportive of NATO. Last fall, researchers in West Germany found that almost 90 percent of the people there favor good relations with the U.S. and over 70 percent support the presence of American and other Western troops on German soil. (U.S. News and World Report, 14 Dec 81.)

These broad-based surveys are confirmed when I visit U.S. installations in Europe and ask how relations are with the local community. The answer is invariably "never better," and authorities at all levels are working hard to see that it stays that way. Rather than withdrawing U.S. Forces at this time and feeding any minority doubts in Europe about the U.S. commitment to our NATO Allies, the U.S. needs to continue to take the lead, by example, in the Alliance effort to do more. The U.S. should continue to emphasize U.S. actions in the NATO context.

Now is Not Time for U.S. Forces To Leave

No one knows how long U.S. military forces will have to remain in Europe. However, it is the judgment of senior U.S. military commanders in Europe that to withdraw major elements of U.S. forces now:

--Would place increased requirements for deterrence on nuclear forces, at a time when our objective is to increase reliance on conventional forces;

--Would create the impression among anti-American groups in Europe that they could dictate U.S. security policy;

--Would lead to an unravelling of the NATO Alliance at a time when more, rather than less, military capability and political cohesion are required;

--Would move the Soviets down the road toward their objectives in domination of Western Europe without any effort or risk on their part; and,

--Would be counter to U.S. vital interests.

Simply put, to withdraw U.S. forces now would have the wrong effect, yield the wrong results, and send the wrong message to our Allies and potential adversaries alike.

U.S. TROOP INCREASES IN EUROPE

Senator **Stevens**. Gentlemen, in the first instance what we are talking about is why should we be sending 21,000 more troops to Europe. You are both talking about withdrawals. We are talking about increases. I don't recall any discussions—and I think I have been at these hearings now both since the change in administrations and previously to that, and I think I was one member of our side that attended almost constantly the hearings held by my distinguished friend from Mississippi—I don't ever remember anybody justifying increasing troop strength to Europe. Yet we find there are 21,000 additional troops slated to be moved to Europe in 1982 and 1983.

I have some specific questions for you:

Where is the justification for that in any of the presentations you made to us?

How much funding was targeted for 1982 and 1983, to move those additional troops to Europe, and why did we decide to do it in light of the fact that our European allies have reduced their troop strength by 56,000 in the period since 1975?

I will be happy to have either one of you respond. We have never been told you were increasing troop strength. We have never been given justification; or told how much it costs to send 21,000 additional troops to Europe.

In view of the resolution passed by the Senate after the battle with Harry Truman, on what basis does the Air Force, the administration, and the Army decide to send additional troops to Europe without notifying Congress?

General SMITH. That question came up yesterday, Mr. Chairman. I have looked at those figures. We have not yet been able to substantiate where those 21,000 came from. There are about 3,000 that are scheduled in fiscal years 1982 and 1983 to go to the United Kingdom from the Air Force. As I mentioned yesterday, those are primarily for the ground-launched cruise missiles and for the TR-1 aircraft which will increase our ability to have intelligence. Those are the only sizable Air Force increases.

In terms of U.S. Army forces, they do not have any large increases or any increases planned for fiscal year 1983. Their program shows there may be about 1,400 people who are going to have to be provided for new jobs, but at this point they do not plan—the U.S. Army in Europe, talking about General Kroesen's troops—any major increases in their forces during that time.

Senator STEVENS. Our attention was drawn to a statement by Fred C. Ikle on February 28 of this year, and in that he provided Table 3, Military Manpower by Forward Location for Europe: in 1981, 337,400; in 1982, 353,400; in 1983, 357,900. It shows increases primarily in Germany and the United Kingdom.

We have some other conversations about why we are increasing troop strength in the Pacific, in view of Japan's absolute failure to carry out their commitment for protection within 1,000 miles of their own islands.

We have increased from 46.2 in 1981 to 50.5 in 1982, and 50.7—as a matter of fact, those are your own figures; those aren't ours. We were startled when we came across them, because I was seriously questioning the need for maintaining the existing troop strength.

The record is clear from the testimony from your own department that there is a 21,000 increase to Europe in these 2 fiscal years. I want to know why. I particularly want to know how much is the cost because I intend to do my best to cut out the money to allow it.

Mr. PERLE. Senator, we will provide you with cost estimates. We can give you a breakdown as well of where the increases will come, and why.

[The information follows:]

TROOP STRENGTHS IN EUROPE

Unfortunately, there has been some confusion surrounding the number of additional U.S. forces we plan to send to Europe in the 1981-83 period. Three numbers have been discussed that require clarification:

The first number is 20,500. The 1983 Defense Manpower Requirements Report showed that we planned to have 357.9 thousand U.S. troops in Europe at the end of fiscal year 1983, a net increase of 20,500 over the number of U.S. troops that were actually in Europe at the end of fiscal year 1981. We have determined that the fiscal year 1983 projection of authorized U.S. military manpower in Europe included an accounting error in the Army column, and that the corrected figure for fiscal year 1983 planned authorization in Europe is lower by 7,300, at 350,600. Therefore, the "20,500 increase" is in error.

The second number if 13,200. Correcting the fiscal year 1983 figure as noted yields a growth from the actual fiscal year 1981 number to the revised fiscal year 1983 projected authorization of 13,200. The bulk of this increase (11,100) represents spaces that were authorized for Europe in fiscal year 1981 but which were not filled as planned (5,500) or due to ship deployment were not counted in theater on the last day of the fiscal year (5,600).

The third number is 2,100. Netting from the fiscal year 1981-1983 growth of 13,200 the increase in European spaces that had previously been authorized for fiscal year

1981 (11,100) yields the number of additional U.S. spaces in Europe for which we are requesting authorizations in fiscal year 1983 over 1981. This figure is 2,100.

The military components that are planning to increase end-strength in Europe significantly between fiscal year 1981–83—using either actual-to-authorized or authorized-to-authorized accounting—are the Air Force and the Navy. The Air Force increase is attributable to: (1) initial support of the Ground Launched Cruise Missile program; (2) an additional Red Horse squadron; (3) additional AWACS deployments; (4) increased mission capability (maintenance and flying hours); and (5) improved security. The Navy increase is attributable to expanded shore facilitieis in the Atlantic and Mediterranean theaters for Naval air.

The costing of additional troops in Europe is very complex, assuming that these troops would not be dropped from end-strength but would be stationed elsewhere, and assuming that we do not neglect our substantial defense commitment to NATO.

The costs given here reflect only the subset of total costs associated with Permanent Change of Station moves (PCS costs).

Note that these figures are overstated, perhaps by as much as 40 to 50 percent, in that they fail to account for the PCS costs that would be incurred even if these troops were not deployed to Europe.

[Dollars in millions—fiscal years]

Point of reference	Fiscal year 1981–83 strength growth	PCS costs
Authorized-authorized	2,100	$12.8
Actual-authorized	13,200 (7,500 ashore)	$45.8

Recognizing the need of Congress to know the budget implications of our defense policies, the Department is now developing more comprehensive cost estimates associated with particular deployments, or changes in these deployments. These will be reported to the Congress as soon as they are completed.

JUSTIFICATION FOR INCREASING U.S. PERSONNEL IN NATO

Senator **Stevens**. Mr. Secretary, why wasn't this committee notified, or the Congress notified?

Mr. **Perle**. There tend to be fluctuations in the level from one year to the next.

Senator **Stevens**. A 58,000-increase in a period of 8 years is not exactly fluctuation when you are building a base of 300,000. I don't think this is a fluctuation; this is a steady increase.

What is more, the Department has failed to notify the Congress that the NATO allies were reducing their commitments concomitantly at the same time. We will have, in 5 years, put in 37,000 new troops during a period of time when they reduced theirs 56,000, and we are adding 21,000 more, as I pointed out yesterday. Those are the Department's figures. I don't have to justify them. If you think they are in error, tell me where they are in error.

My staff has gone through this. We are appalled at what we are finding in terms of the commitments and the funding commitment in a tight budget period.

Tell me this. We are told—and there is no question about it—this committee is to be directed by the first of the week to reduce this budget from $4 to $6 billion. You say, Mr. Perle, we are all tied together like mountain climbers. They are all hanging to one guy with one piton preventing a fall. On what basis do you increase costs in NATO at a time when we are forced to decide whether we can afford the President's modernization program?

Mr. **Perle**. Senator Stevens, we believe that some expenditures that entail the presence of American forces in Europe are actually quite efficient ways of providing for the defense of the United States. If we didn't think that, they wouldn't be there. I grant you there is room for disagreement over the wisdom of that strategy. The fact that troops are deployed in Europe rather than in the United States or somewhere else doesn't necessarily suggest that if these budgets are tight and cuts have to be made that that is where the cut should be made.

We are not in Europe because we like the color of the Europeans' eyes. We are there because we think it is essential to our own defense.

Senator **Stevens**. I have been to every NATO parliamentry meeting, but two since I have been in the Congress. I think I enjoy being with the NATO people as much as anyone else, and I am delighted with the fact that we have a NATO concept. But, when you look at it in terms of the developing situation, we have not been kept informed on an accurate basis about what was going on.

HOST COUNTRY AGREEMENTS

On what basis do we highly tout a recent wartime host country agreement when they are not living up to their peacetime agreement? How can we rely on host country agreements for wartime if we can't rely on them for peacetime? Why should we tout that and make so much of the signing of the agreement?

To me, the agreement is not worth much more than the paper when they agreed to a goal of 3 percent annual increases in defense expenditures in real terms in order to restore their capability.

Why should we rely on this new agreement? The staff corrects me. They agreed to a 3-percent growth. None of them has done it.

Mr. **Perle**. Some have. It has been a mixed performance. There have always been, I am sorry to say, some years in which we did rather poorly by comparison with the Europeans.

Senator **Stevens**. You said that before. You tell me one time this country has gotten down below 3 percent of real growth.

Mr. **Perle**. In much of the 1970's we actually had a real decline. I will be glad to submit for the record a table showing performance since 1973.

[The table follows:]

Real Change in U.S. Defense Expenditures

There follows the real changes in U.S. Defense Expenditures from 1971 to 1982.

1971	−8.9
1972	−6.7
1973	−8.7
1974	−2.0
1975	−0.8
1976	−3.7
1977	0.9
1978	1.5
1979	3.4
1980	4.9
1981	5.4

U.S. COMMITMENTS TO NATO

Senator **Stevens**. We are talking in terms of our European commitment. You tell me when we slackened off to the point where we were not keeping our commitments to NATO.

Mr. **Perle**. The 3-percent growth commitment is a commitment to aggregate levels of defense investment. There have been years in which the Europeans had greater growth in their level of defense investment than we did. All I am saying, Senator, is that performance varies from one year to the next.

Senator **Stevens**. There was a time when Senator Cooper, Senator Jackson, and others were all going over there, urging the parliamentarians from NATO to make certain that their countries increased their performance. It was matched against our level at the time of 7 to 8 percent of the GNP. If we slipped down to 5 or 6, we were still far ahead of their efforts.

Mr. **Perle**. There is no question that as a percentage of GNP we have done better than virtually any other of the allies; that is quite right.

We have worldwide responsibilities that are not paralleled by the responsibilities of the Europeans. There are costs associated with the status we enjoy in the world as a great power and as the only great power capable of leading a collection of free nations that wish to remain free.

The Danes, the Belgians, simply don't occupy comparable positions in international politics. There are some burdens associated with the position we occupy.

EFFECT OF FRENCH WITHDRAWAL FROM NATO

Senator **Stevens**. Gen. Maxwell Taylor stated recently that a sustained conventional defense by NATO forces currently available is not possible because of the French withdrawal from NATO in 1966. We have all debated that. In view of that fact, why do we increase our troop commitments to Europe?

Mr. **Perle**. Some of the increases, indeed all of them, have to be justified in terms of the specific roles and missions that those troops are going to play. The sending of additional forces to the United Kingdom in order to man bases for ground-launched cruise missiles, for example, is justified in terms of the capability to deter that will result from the presence of those ground-launched cruise missiles in Europe.

I think we would have to go through contingent by contingent, Senator, to give you a reasonable answer to your question.

We would be quite prepared, as I said earlier, to supply for the record a breakdown of exactly what these forces will do when they are stationed in Europe. I believe there are some differences in the various figures that have been discussed.

I would hope that some of our people could get together with some of yours, so that we are talking from the same data base. We certainly ought to clarify those differences.

As far as the notification is concerned, I can only assure you there was no intention to approach this obliquely and sneak forces in under the wire. It was simply a matter of not having brought to sufficient attention the sort of almost routine adjustment in force levels that takes place every year. I certainly wouldn't want you to be left with the impression that we are unwilling to defend those decisions or explain them.

Senator **STEVENS**. I have not seen any justification for them.

I have some specific questions that I will submit to you for the record, and we would like specific answers on where these troops are coming from and what the cost is.

COST OF U.S. TROOPS IN EUROPE

When we ask for the cost of maintaining troops in Europe, we are led to the impression that the Department of Defense believes it is cheaper to keep troops in Europe than it is in the United States. Do you share that opinion?

Mr. **PERLE**. I think this question of how one costs troops in Europe is a very difficult one to answer. I think it is clear that if we were to bring forces back from Europe, build facilities to house them in the United States, provide training areas in the United States, and maintain the airlift and sealift necessary to redeploy them in the event of a war, the net cost would be greater than the cost associated with retaining them in Europe, as long as one believes that we can better defend the United States by being able to deal with our principal adversary close to the point of origin of the conflict.

Senator **STEVENS**. Mr. Perle, we have to assume that these troops are somewhere. You have not asked for a 21,000-troop increase in this period, so you are moving them from somewhere, either from the United States or around the world. We are already paying to keep them somewhere.

The decision has apparently been made since 1975 to slowly build up the troop strength in Europe. I would say it is a slow buildup. There has never been a notification to Congress. It has been a slow, steady buildup with the knowledge that the NATO allies were reducing their strength at the same time. It leads this Senator to believe that somehow or other we are almost replacing man for man the people they are no longer providing for the forces in Europe.

Mr. **PERLE**. It is not quite that sort of equivalence, in the sense that some of the missions we expect to perform in Europe would not be performed by the Europeans in any case. I think the ground-launched cruise missiles, which are nuclear weapons, are a good example of that.

I believe the way to look at these numbers is in terms of the missions they will perform. If they are missions which are important to the United States, then the failure to perform them because one ally or another is not doing everything we would like them to do would not solve the problem.

Senator **STEVENS**. I think you had better identify that. Our impression, both the staff and mine, is that you are basically talking about ground troops. Maybe you are talking about a couple of thousand highly trained people in the 58,000, but the bulk of them is to increase in ground troops, just as the bulk of the decrease in the European strength is ground troops. It roughly is, as I said, 58,000 to 56,000. If you have a couple of thousand highly trained people associated with cruise missile launch, then we are just about on par. We have added people that they have withdrawn from the NATO structure.

MISSION ASSIGNMENTS

Mr. **Perle.** I certainly would not want the committee to be left with the impression that we have a policy of stepping in to fill shortfalls in the performance of our allies. That is not our policy. These decisions have been made with respect to specific missions. I think we will make progress in getting to the bottom of this when we do supply you mission by mission with the assignments that those additional forces will have. We will be glad to do that.

[The information follows:]

TROOP STRENGTHS IN EUROPE

The military components that are planning to increase end-strength in Europe significantly between fiscal years 1981 and 1983 are the Air Force and the Navy. The Air Force increase is attributable to: (1) initial support of the Ground Launched Cruise Missile program; (2) an additional Red Horse squadron; (3) additional AWACS deployments; (4) increased mission capability (maintenance and flying hours); and (5) improved security. The Navy increase is attributable to expanded shore facilities in the Atlantic and Mediterranean theaters for naval air.

FORCE REDUCTION

Senator **Stevens.** I have one last question and then I will yield to Senator Stennis:

As I understand it, the Armed Services Committee has said the same thing this committee has. That is, that we are going to look to force reductions before we are going to support any change in the concept of our modernization program that we have submitted to the Senate and the President has approved.

Can you tell me, if we have force reduction, where can we apply it other than to Europe, and over half of our real force commitment is to Europe? The Armed Services Committee decided the same thing. If we are forced to reduce this budget, it has to come out of force strength somewhere.

How can the administration tell us not to take it out of Europe and at the same time tell us it is going to, as a matter of fact, increase strength in Europe while we are faced with the question of force reduction throughout the world?

Mr. **Perle.** As you know, we are not anxious to make cuts anywhere. If faced with cuts, we would attempt to make them in the least damaging way; that is, to allocate those cuts so that the diminution of our military capability is held to an absolute minimum. I am not going to tell you that forces in Europe are sacrosanct in that regard. If that appears to be the most efficient place to take a cut in force structure, then we would look very hard at that.

Senator **Stevens.** I don't know any other place to look at it.

Are there any troop movements underway now? Are these troops going to be moved before the supplemental is approved?

Mr. **Perle.** I can't answer that, Senator. I just don't know what the timing of movement of forces is. We can supply that for the record.

[The information follows:]

TROOP STRENGTHS IN EUROPE

The military components that are planning to increase end-strength in Europe significantly between fiscal years 1981 and 1983 are the Air Force and the Navy. The personnel assignment systems of these Services are working in a routine fashion to fill these overseas billets. This means that personnel will not be deploying to Europe in large numbers according to some previously established schedule, but rather that qualified and eligible individuals will be relocated as needed as part of normal operational assignment cycles.

DELAY IN TROOP INCREASES IN EUROPE

Senator STEVENS. I would ask you to convey, most respectfully, to the Secretary, the request of this committee that those additional troops not be moved to Europe until we can determine what is going to be the force structure decision as a result of these budget reductions. It would seem to me to be imperative not to move troops over there now that we might have to bring back or literally take out of the service.

We are talking about a troop reduction in the sense of a cut in end strength. I just cannot see that we should be moving those troops to Europe at a time when we may be forced to make a troop reduction. We don't want to make troop reductions. This committee has supported almost 100 percent the requests of the administration last year.

I don't know any of the NATO countries going out and borrowing money at the rate we are borrowing in order to maintain our commitment. We have reached the end of our borrowing.

Senator STENNIS?

Senator STENNIS. Mr. Chairman, I have enjoyed your questions very much and the Secretary's answers and his testimony.

TELEVISING SENATE FLOOR DEBATES

I think you have raised a point here which has been deferred for many years. It probably is going to have to be answered now. It seems to me that the Senate is going step by step toward the idea of televising the Senate proceedings and speeches.

I know by experience that very strong arguments have been made on the Senate floor in favor of reducing the troops in Europe. Senator Mansfield was a leader of that group. He was then leader of the majority party. He filed amendments to appropriations bills for the Department of Defense calling for a reduction of troops in Europe. I remember one he filed where he had 44 Senators' names in favor of the amendment.

I have been called upon to defend against these reductions. We had a situation in the Appropriations Committee. Senator Russell couldn't be there all that time, and after he had passed away—I won't go into detail—but they sent for me at the White House and it fell to my luck to carry the load. So I got into this thing pretty deeply.

When they introduced the amendment co-sponsored by 44 Senators, I thought it looked like the jig was up, but that amendment did not pass. So, if we get into televising the Senate—and I say this seriously—you are really going to have some Senators who will put this whole picture before the people.

Now, you are going to have to work harder for appropriations. This load has been carried, as I see it, by the military and by the Department of Defense and by the Armed Services Committees and the Appropriations Committees that are all pro military, you might say. That is the way it has been year after year after year.

Now, if you really get this out and compare it with the reductions in the so-called social programs, you are going to have hard going. I am not trying to give anyone a lecture, Mr. Chairman, but I think the military is going to to have to work mighty hard to save money over there in these assignments.

I am familiar with the assignments. I remember when the late General Eisenhower testified in favor of NATO he managed to turn the tide there for its formation, in my humble judgment. This thing has grown and grown and grown. Of course, conditions have changed; they have become worse; so it had to grow. At the same time I think you could make your money go further over there, make the dollar go further.

I was down in Greenwood, Miss., last summer at the invitation of a reserve unit of the Army who won their right to go to Germany and go into special training over there in May. I tell you, I was proud of that group of men, the finest talent and training and dedication and devotion; they knew what they were doing. That is a plus. I want to put that in, too.

But on the money side you are going to have to compete now more than ever with these other demands, trying to reduce the deficit. We have to reduce the gap. That is what the financial world is saying to us, as I see it, we have to close ranks, provide better housekeeping.

I think the military can do a lot.

Now we are asked by Senators and constituents, "what does it cost for our NATO expenditures." I know it is very difficult for you to answer, but we are entitled to a figure and I am looking to you, Mr. Perle—we are entitled to a figure here that will be a handle to this problem in some way. It is very difficult to get the answer. Do you have a figure in your mind about what it costs per thousand or per unit or whatever it is in a 12-month period? Could you help us on that?

Mr. **Perle**. Senator, we will be glad to provide for you figures of that type. The figure we have been reluctant—I certainly have been reluctant—to provide——

Senator **Stennis**. Pardon me. If you don't want to give it in public, that is all right. I commend you for that. I don't believe in overexposure.

Mr. **Perle**. We can pull together figures like the cost per troop stationed in the United States and stationed abroad, and we will be glad to provide them to you. The figure I have been reluctant to provide is some aggregate dollar cost for the U.S. commitment to NATO because that strikes me as, at best, a misleading figure.

[The information follows:]

Costs of U.S. Forces in Europe

We are developig a detailed estimate of the costs requested, in a manner that permits identifying those costs uniquely associated with our force deployments. We will forward the requested information to the Committee as soon as it is available, and expect to have it ready in approximately one month.

STRATEGY COSTS

Mr. **Perle**. When this came up in the hearing in the Armed Services Committee, you showed some interest in that figure. I went back and said to the people who work in this area, how can we give a figure that in a meaningful way reflects the costs of this strategy as opposed to the cost of other strategies? Because you can't separate the number from the way it is proposed that we defend our security. I found for the last 10 or 12 years we have been producing figures every year that simply aggregated the costs of all the forces in Europe, all the forces that would be deployed to Europe in the event of war, a fraction of overhead, and it was a single figure. It is, in my judgment, totally misleading figure.

I haven't found out who had the bright idea of pulling that figure together in the first place, but it seems to me the worst kind of statistical manipulation, that tells you really none of the information which you want to know.

What I believe you want to know is how can we improve the efficiency with which we spend these valuable resources, and whether it is more efficient to spend a dollar on a troop in Europe or somewhere else?

We will try very hard to develop alternative ways of looking at that problem to give you an answer.

[The information follows:]

Cost of U.S. Defense Commitment to NATO

In recent years, the Department of Defense has responded to Congressional requests for information on the cost of the U.S. contribution to NATO by "allocating" our forces to various regions of the world where they might be needed and then determining the cost of maintaining them. This approach has obvious shortcomings. The two most obvious deficiencies are:

U.S. forces are multipurpose. While U.S. forces are available to meet any aggression in Europe by the Soviet Union and its allies, they must also be able to respond to threats against U.S. security in other regions of the globe. Thus, even if our NATO commitment were suddenly to disappear, we would not be able to deactivate any significant portion of our forces in Europe, much less those in CONUS whose current primary mission is rapid deployment to Europe.

Much of the U.S. force structure not directly allocable to Europe nevertheless supports our NATO strategy and deterrent posture. Our strategic nuclear forces and the Rapid Deployment Joint Task Force (RDJTF) are examples.

For these reasons, the Department is developing an improved set of estimates that will give the Congress a better sense of the costs associated with particular deployments, or changes in these deployments.

Because possible troop withdrawals have been a subject of great current interest to the Congress, we have developed an interim estimate of the effect on Defense TOA of withdrawing troops from Europe and restationing them in the United States. In all cases, the costs of returning the forces and headquarters and of refurbishing or constructing the appropriate base facilities in CONUS result in increased TOA through the next 5 years. For the illustrative options depicted in the following table (Part A), the added 5-year costs range from $800 million to $17 billion.

If we intend to maintain a capability to defend against aggression by the Warsaw Pact, additional mobility forces must be purchased to transport the troops back to Europe when necessary. These five-year costs, as shown in Part B, could range from $5 billion to $20 billion. In Options 1 and 2, enough mobility assets are procured (airlift and fast sealift) to return these forces to Europe by M+30. In Option 3—complete USA and USAF withdrawal—no such capability is procured due to its enormous costs; therefore, no capability for rapid return exists.

Figures in the three options depicted in the following table are based on generic cost of restationing Army and Air Force units at both new and refurbished bases in the U.S. We are conducting a study of the specific basing actions that would probably be taken if any of these three levels of withdrawal were to be undertaken. We will then price out these actions to obtain a more precise estimate of the costs of withdrawal. We hope to have that study completed by the beginning of June.

If the costs of restationing U.S. forces in Europe seem high, it must be remembered that we are talking of moving and relocating about one-third of our active Air Force and Army tactical forces from the bases where they have been permanently stationed for 37 years. This would involve a massive movement of men and material (e.g., 800,000 tons of Army ammunition), not to speak of rethinking our entire NATO strategy.

RESTATIONING COSTS

[Dollars in billions—TOA]

	Fiscal year	
	1983	1983–87
Part A.—Illustrative U.S. troop withdrawals from Europe:		
Option 1: 1 division, 2 TFW	0.1	0.8
Option 2: 1 corps, 5 TFW	.4	8.5
Option 3: All Europe-deployed USA and USAF forces	.8	17.0
Part B.—With provision of mobility forces:		
Option 1:		
1 division, 1 TFW, restationing costs	.1	.8
Additional mobility	.1	4.3
Total	2.2	5.1
Option 2:		
1 corps, 5 TFW, restationing costs	.4	8.5
Additional mobility	2.2	11.2
Total	2.6	19.7
Option 3:		
All USA and USAF forces, restationing costs	.8	17.0
Additional mobility		
Total	.8	17.0

Senator STENNIS. That last point would be a judgment that we would have to make.

Now, we just have to ramble around in the dark, so to speak, and not knowing just where the actual controlling facts are; therefore, I don't think any committee has ever concluded as to what it costs. You can't accurately do it, as I see it, but we need something that is in the neighborhood. People, I think, are going to demand it.

Mr. PERLE. We would be very pleased to have our people who handle these numbers sit down with some of the committee staff to discuss this issue thoroughly to see which data you would be interested in having us provide, and how we view that data, and let us see if we can't get some numbers that we can agree are meaningful.

Senator STENNIS. We have a very active, effective chairman. I am not here to praise him but I hope he continues to pursue this matter and come up with something that is far more helpful and nearer the actual facts than we have now, and that you agree you do not have either yet.

Can you go at it this way?

Mr. **Perle.** There is no question that the committee is entitled to whatever figures it believes it needs to make sensible decisions, and we ought to have those figures, too. I believe the best way to do it would be to let the staff sit down with all the basic data and come to some sensible conclusion. But we will make every effort to give you the numbers you want.

Senator **Stennis.** And make an effort to hold it down and save some money, make that dollar go further.

Mr. **Perle.** Yes, sir.

Senator **Stennis.** Thank you, Mr. Chairman.

Senator **Stevens.** Senator Andrews.

POOR CONTRIBUTIONS BY NATO ALLIES

Senator **Andrews.** Thank you, Mr. Chairman. What the chairman has said is extremely important. The response to the Senator from Mississippi's question about the competition for these funds was polite and friendly. In response to the chairman's query about where the 21,000 troops were coming from, you were totally evasive but friendly. You are giving no answers whatsoever.

I have been sitting in the Appropriations Committee 17 years and I have never seen such evasive witnesses as I am seeing today.

You know, you are talking about a NATO problem. You seem to think that "We will just snow them and somehow or other they will keep continuing to appropriate, appropriate, appropriate."

One of the things I think you mentioned that we should be dwelling on, General Smith, you in your testimony, and it was in your summary of testimony as well as your written testimony, you touched on the subject that the U.S. defending Europe protects U.S. interests. Secretary Perle said the same thing.

How in the devil are we protecting U.S. interests by protecting European interests when they are sandbagging every darned economic interest we might have? They refused to come along with any type of sanctions that amounted to anything when we had an Iran hostage crisis. They are wishy-washy on Afghanistan. They are pursuing so much their own private détente and backing away so much from the Atlantic alliance that the people of this country are getting damn sick and tired of spending and spending and spending to protect those who are unwilling to spend and sacrifice to protect themselves.

When we look at the economic doubletalk we get from the European trading partners who put fees on our grain when it lands in Europe that amount to the value of the grain when it leaves our shores, who can outproduce us in automobiles, steel and a host of other things because they are not bearing an adequate defense commitment, the Senator from Alaska—and I join him in projecting the idea that maybe we ought to put a defense tax on these products from Europe that they want to land on our shores if they are unwilling to make contributions out of their gross national product and they want to undersell our industry.

Then we have some people from the Defense Department who say it is important to us to protect their economy. That story is not selling anymore. The whole question of what direction the European Community is heading when we address burden sharing and defense is something we have to address. We can't evade it. We can't move around it.

We have to discover where 21,000 troops are coming from that go to Europe. I think we ought to pull 21,000 troops out of Europe. I think if the Europeans aren't willing to go along with us in some of these economic changes that need to be made, let them stand by themselves. We have been made the patsy by the European Community for far too long. I think Americans are quick to remember the Europeans' slow response in aiding us when we get into trouble.

Can you supply, Mr. Secretary, the answer to the question that the chairman raised, where are these troops coming from?

Mr. PERLE. Yes; we can. I cannot give you the kind of detail I think you are looking for now, because I simply do not know it. I am not being evasive. I am telling you as much as I know.

Senator ANDREWS. Who knows the detail if you don't? Do you let the corporals in the field decide this, or is it the people who have the title of Secretary that make the decisions?

Mr. PERLE. Let me try to explain the broad principles involved. There are among the increased numbers some troops assigned to responsibilities that are new. The clearest example of that is the forces that will operate the ground-launched cruise missile station in the United Kingdom.

In addition to this, there are some other dedicated forces. We can and will provide for you a precise identification of those troops.

[The information follows:]

TROOP STRENGTHS IN EUROPE

Unfortunately, there has been some confusion surrounding the number of additional U.S. forces we plan to send to Europe in the fiscal year 1981–83 period. Three numbers have been discussed that require clarification:

The first number is 20,500. The 1983 Defense Manpower Requirements Report showed that we planned to have 357,900 U.S. troops in Europe at the end of fiscal year 1983, a net increase of 20,500 over the number of U.S. troops that were actually in Europe at the end of fiscal year 1981. We have determined that the fiscal year 1983 projection of authorized U.S. military manpower in Europe included an accounting error in the Army column, and that the corrected figure for fiscal year 1983 planned authorization in Europe is lower by 7.3 thousand, at 350,600. Therefore, the "20,500 increase" is in error.

The second number is 13,200. Correcting the fiscal year 1983 figure as noted yields a growth from the actual fiscal year 1981 number to the revised fiscal year 1983 projected authorization of 13,200. The bulk of this increase (11.1 thousand) represents spaces that were authorized for Europe in fiscal year 1981 but which were not filled as planned (5,500) or due to ship deployments were not counted in theater on the last day of the fiscal year (5,600).

The third number is 2,100. Netting from the fiscal year 1981–1983 growth of 13,200 the increase in European spaces that had previously been authorized for fiscal year 1981 (11,100) yields the number of additional U.S. spaces in Europe for which we are requesting authorizations in fiscal year 1983 over fiscal year 1981. This figure is 2,100.

Therefore, on the question, "Where are the additional troops coming from?", the appropriate figure to be used is either 13,200 actual-to-authorized growth or, alternatively, 2,100 authorized-to-authorized growth.

The military components that are planning to increase end-strength in Europe significantly between fiscal year 1981–83 are the Air Force and the Navy. Increases in Air Force end-strength in Europe will be achieved through a combination of overall force growth during this period and the relocation of qualified and eligible individuals as needed from CONUS and from other overseas bases as part of the normal operational assignment process. Increases in Navy end-strength in Europe will be realized through increases in force strength overall, and through the standard operational deployment cycle of our more capable and manpower-intensive fleet. In sum, increasing troop deployments in Europe will be achieved through force growth and routine individual reassignments and not through major unit realignments which would substantially reduce manning at other locations.

MODERNIZATION PROCESS

Mr. **Perle**. Beyond that, there is a process of modernization going on. When an Army division is modernized and it receives different equipment, the numbers of personnel associated with the operation of that equipment may change, and in some cases increase.

Now, we can fail to modernize and therefore not increase the number of forces. Unhappily, the Soviet Union has been modernizing at a significant and increasingly dangerous rate. What we have sought to do is keep some semblance of a conventional balance because we believe that is essential to our security; that will entail changed numbers and from time to time the changes will be upward.

ALLIES USE OF PREPOSITIONED EQUIPMENT

Senator **Andrews**. Let me run a different number by you. As I understand, Mr. Secretary, the United States is committed to provide some 130,000 Army troops within 15 days at the outbreak of war to the defense of central Western Europe. That is essentially correct, is it not?

Mr. **Perle**. That is correct.

Senator **Andrews**. These troops will use U.S. pre-positioned equipment. Now, these are U.S.-based regular troops, as I understand it; is that not correct?

Mr. **Perle**. That is correct.

Senator **Andrews**. Why can't our strategic planners who sit down in the Pentagon figure out a way of using, let us say, European reserves, German reserves, to use our pre-positioned equipment? They can move a whale of a lot faster than we can airlift over the Atlantic. They would be defending their homeland. It would cut considerably the cost of our troop strength by setting up a concept with the Europeans to have their reserves be the first blush of the backup given the outbreak or war.

Mr. **Perle**. The Europeans will be mobilizing as well, Senator. The point of the mobilization of reserve American forces is to make a contribution to the total effort, but the Europeans will not be——

Senator **Andrews**. We already seem to be making almost the total contribution over there. It seems to me the German reserves could be mobilized much more rapidly than we could move our troops. All they lack, I understand, is the necessary equipment and expendable supplies to do the job. We have the equipment and supplies over there. They could supply the troops. You can put it to them on a put-up or shut-up basis, "Are you willing to defend your country?"

General **Smith**. What we want to do is to add to our capability rather than substitute for it. We should encourage them to have reserve forces, but we should encourage them to use their own equipment rather than our equipment, so that forces would be additive. In terms of the threat we see it is going to take more than we have now if we are going to defend conventionally for a significant period of time.

Senator **Andrews**. General, I understand that they do not have the necessary equipment and expendable supplies to mobilize that number of reserve troops plus their regular troops. All I am suggesting is that they do have the manpower in the reserves there. That manpower, wedded to our equipment already on site, could save us a whale of a lot of money and give us the same amount of impact in any battles that broke out.

General **Smith**. I still would much prefer to have their reserves with their equipment additive to the U.S. forces. They have reserves and they have programs in Germany now to increase their reserves and to increase the equipment.

Senator **Andrews**. But they do not have the equipment and supplies to supply that number of reserves, as I understand it.

General **Smith**. They would not be able to do that number in a short period of time now.

Senator **Andrews**. That is true, yet we have the supplies; they have the manpower there. It would seem a commonsense arrangement. If you could provide a little more discussion on that for the record I would appreciate it.

[The information follows:]

Host Nation Support Programs

The U.S. does plan certain actions in the general direction you suggest. The war time Host Nation Support Agreement I mentioned in my statement would have FRG personnel—some 93,000 of them—provide security for U.S. installations and assist in the movement of U.S. supplies during wartime. They would in some instances use basic U.S. logistics equipment in so doing.

As for equipping West German reserve units with U.S. weapons and equipment, in my view that would run into a number of problems. First, German reservists would require training on the U.S. equipment and require access to that equipment for training on a continuing basis. The inevitable logistic problems of support for that equipment in the hands of FRG units would be substantial. In addition, the German military age population is declining. Further demographic problems could render ineffective any near term increases in reserve units along the lines you suggest. But the basic consideration in all this is that NATO needs both the U.S. reinforcing units and improved, well equipped, well trained Allied reserves if the alliance is to be able to execute its war plans. Thus, the U.S. needs to complement it's capabilities not substitute for them. And NATO is working on that. For example, the NATO Long-Term Defense Program (LTDP) requested eight European nations to consider forming ten and two thirds additional armored/mechanized brigades from hitherto uncommitted reserve manpower for allocation to NATO, as a long term measure. Each nation accepted this as a best endeavor, but much remains to be done. In this context, as part of their efforts to improve within the past several years, the West Germans have provided some existing reserve units with the same equipment as active forces, and have built up the capabilities of territorial army units.

Senator **Andrews**. Thank you, Mr. Chairman.

Senator **Stevens**. Senator Johnston?

Senator **Johnston**. I have one question.

TRIPWIRE CONCEPT IN EUROPE

Mr. Perle, you say that we have never had as dangerous a threat as we have at the present time. Previously we used to speak of U.S. forces in Europe as a tripwire, that is to say, they weren't sufficient really to stop a Soviet invasion; they were enough ready merely to slow them down while we either brought in tactical nuclear weapons or did something other than defend them on the ground. Now you are suggesting that now the tripwire is weaker than ever.

Is the tripwire concept still there? Are we really trying to defend against an invasion from the Soviet Union?

Mr. **Perle**. Senator, we are trying to deter that invasion from the Soviet Union. For a very long time, as you know, the principal deterrent effect that we achieved with the tripwire strategy resulted from a comfortable superiority in nuclear weapons, both strategic and theater nuclear weapons.

Unhappily, that superiority is gone. Indeed, the Soviet Union has a theater nuclear superiority in Europe. There is a serious question about the stability of the strategic balance as well. As this has developed, it has become more important than ever before to be in a position to mount a credible conventional defense.

That American presence in Europe has been called a tripwire, but it ought not to be something to trip over on the way to the English Channel. It has to have some real fighting capability, together with our allies.

I can't think of a higher defense priority than to enhance the conventional capability of the alliance in the face of the deterioration of the nuclear balance.

Senator **Johnston**. Enhance it to what purpose, to be able to defend against an invasion?

Mr. **Perle**. To make costly and uncertain the outcome of a Soviet invasion against Western Europe.

Senator **Johnston**. Is that outcome certain now, barring the use of tactical nuclear weapons?

Mr. **Perle**. It is not certain to the point that it would be wise for the Soviet leaders to plan that invasion. I think they have come to the same conclusion.

STRENGTHENING WEAK LINKS IN NATO CHAIN

Senator **Johnston**. We heard testimony yesterday that the American sector is stronger than the other sectors, particularly in the northern plains where the Netherlanders and the British troops defend; that is the weakest link in our chain, and indeed the most probable route of invasion.

Now, we sit here and talk about strengthening the strongest link. What can we do to strengthen the weakest link?

Mr. **Perle**. There is much we should be doing on the flanks. There are at present significant programs underway to strengthen the NATO flanks, both the northern flank, with some important programs in Norway, and the southern flank as well. There are real weaknesses there.

One of the things that the administration has sought to do is devote more attention to the flanks than has been done previously.

Senator **Johnston**. How do we do that?

Mr. **Perle**. General Smith may want to comment.

General **Smith**. Specifically, the Supreme Allied Commander, General Rogers, has made, each year, proposals to the nations on how they should strengthen their defenses so that they can be better prepared.

To answer your question specifically, it is through those force proposals and force goals which the nations accept that we point them in the right directions to get their priorities in line so that they will put their effort where it is most needed to strengthen their position at minimum cost.

This is an ongoing effort. General Rogers has said he believes if the alliance members accept about a 4-percent increase each year in their defense budget, that we can make major steps during this decade to improve the relative balance in central Europe.

SOVIET TANK CAPABILITY

Senator **Johnston**. One final question to Mr. Perle. The main threat, it seems to me, from attack by the Soviets centers around their tank capability. That is their offensive capability. Have we ever embarked on serious talks with the Soviets, and if not, why don't we explore serious talks with them, about their pulling back their tanks, which are not necessary, really, to maintain order in Eastern Europe—they can do that with their troops—in exchange for our consideration of removing tactical nuclear weapons? What is the possibility?

Mr. **Perle**. We have, Senator, at various times in MBFR approached the question of levels of armor that would be associated with the manpower reductions which have been, unfortunately, the central focus of those negotiations. At various times we have insisted that, in the context of an MBFR agreement, as Soviet forces came down they would have to come down in ways that would also reduce Soviet armor.

I think the point is well taken that the overwhelming superiority of Soviet armor is a serious problem for the alliance. We must constantly remind ourselves of your point. The problem we face is, of course, the direct result of the fact that the Soviet Union has been prepared year in and year out to put 13 to 15 percent of its gross national product into the acquisition of military capability across the board from strategic weapons down to tanks and artillery, and the size of our response must reflect the magnitude of their effort if we are to defend this country.

Despite the real and persistent problems of eliciting an adequate level of support from our allies, the fundamental and undeniable fact is that if we do not maintain the balance, we cannot protect our own security.

Senator **Johnston**. Thank you, Mr. Chairman.

Senator **Stevens**. Mr. Rudman?

JAPANESE COMMITMENT IN PACIFIC

Senator **Rudman**. Mr. Perle, I have only two questions:

First, on this whole debate that is developing on the sharing of the burden, not only in Europe, which we are talking abut today, but also I think many of you have deep concerns about the Japanese commitment.

We talked about that yesterday. Let us get down to a specific. Let us see how things are working. We are talking about deploying

400-some-odd ground-launched cruise missiles and a number of Pershing II's in Europe. That is subject, of course, to a lot of discussion at this time and other negotiations, but let us just assume that that goes forward. What efforts have been made or can be made to have our allies, for whose defense as well as ours these missiles are being emplaced, share in the operation of them, in the emplacement of them, the cost of the facilities, the cost of the support?

In other words, I am talking about direct cost sharing of these 500-some-odd nuclear weapons.

Mr. PERLE. Senator, the allies are sharing in the cost of facilities on the bases that are being funded out of the NATO infrastructure program. In fact, the allies will contribute significantly more than one-half, something on the order of three-quarters, of the cost of those facilities.

We have also been involved in negotiations with the allies on the extent to which they would provide support to those facilities and to varying degrees they will, for security and the like. There are certain tasks associated with operation of those nuclear missiles that must remain entirely in our own hands.

Senator RUDMAN. Your answer is, in terms of the facilities, they will share in at least three-quarters of the cost of the construction of those facilities?

Mr. PERLE. That is correct.

Senator RUDMAN. They will contribute to some portion of the support of the system, and we will supply the systems, of course, and we will supply the crews to man them?

Mr. PERLE. That is correct.

Senator RUDMAN. The second question is really of a broader nature. I think it is central to what we are going to eventually evolve here over the next couple of years. I am sure you are very aware of the statement of the four former defense officials concerning foregoing NATO's present doctrine of flexible response, of essentially saying we shall foreswear the use of nuclear weapons first, and we are talking theater nuclear weapons now, obviously.

If, in fact, there were broad support for that doctrine being declared obsolete, the present doctrine, and that we, in fact, would decide to publicly state. with Soviet concurrence, that we would not, then does that not impose enormous additional conventional force burdens on NATO? And can you give me any quantifying numbers as to what that does?

Mr. PERLE. The point that underlies the question is extremely well taken. If we were to relieve the Soviets of the uncertainty that is attached to the possible escalation of conventional war into nuclear war, and if they ever felt confident that a conventional war could be undertaken and we had as a consequence to provide for a wholly conventional defense, we would need to vastly increase virtually all categories of forces that could be brought to bear in a European war.

I can not, for the life of me, understand why we would gratuitously give the Soviets the comfort of knowing they could choose the type of war they are best positioned to fight, so I think the proposal is a very bad one.

TACTICAL NUCLEAR WEAPONS DEFENSE IN NATO

Senator **Rudman**. At any time with the enormous imbalance of armored forces which in the foreseeable future will not be in balance, is it not a fact of life that the only defense that NATO would have right now against a full-scale Soviet assault across Central Europe would be the use of tactical nuclear weapons against vast armored forces? Is that true or not true?

Mr. **Perle**. I think the potential for the use of nuclear weapons accomplishes several important purposes, one of which—and this is not well understood—is the impact that the potential use of nuclear weapons has on the way in which a conventional war would be fought. Because the United States possesses tactical nuclear weapons in Europe, the Soviets are compelled in their planning and in their exercises to disperse their troops.

They would prefer not to disperse those troops, since the underlying doctrine for the use of armor by the Soviets is to mass armor and infantry together in order to break through along a line that would be rather difficult for the alliance to hold. As long as we possess that nuclear capability, they cannot without very high risk mass that armor so as to optimize the effectiveness of their tactics.

Therefore, even without using nuclear weapons we achieve a significant improvement in our conventional capability merely by possessing them.

Now, the question you asked is a hypothetical one, about the circumstances under which, and the point at which, the use of nuclear weapons would be necessary to blunt a Soviet invasion. I do not think I can usefully speculate on when that would occur.

Senator **Rudman**. I did not expect you to.

Let me give you what I believe the bottom line is. I believe the bottom line is by stating publicly a doctrine of nonuse of those weapons as first strike you encourage the very thing you are trying to discourage.

Mr. **Perle**. I agree entirely.

Senator **Rudman**. That is an important point.

Thank you, Mr. Chairman.

Senator **Stevens**. Thank you.

CRISIS IN INFRASTRUCTURE PROGRAM

Following up on Senator Rudman's question, we have noted a GAO draft report states that there is a crisis in the infrastructure program as a result of the shortfall in funding, that one of the causes has been the German unwillingness to renegotiate the current cost ceiling upward.

How has that affected our budget and how does that affect the answer to Senator Rudman that the host country is really paying through the infrastructure funding for these new facilities?

Mr. **Perle**. Ironically, that reluctance on the part of the Germans has had the effect of reducing the amount of money we contribute to the infrastructure funding.

Senator **Stevens**. Explain that to me. Where we spend more money and they have not agreed to increase their contribution, how does it mean we are being affected favorably?

Mr. **Perle**. I said it was ironic. The issue here is not the 5-year program of infrastructure funding that was previously agreed to, at which a negotiated level of $4 billion was agreed to over a 5-year period.

Those funds have been expended at a faster rate than one would expend them if one spent that money evenly over the 5 years.

The military authorities of the alliance have proposed increased funding—and the infrastructure committee has determined—that certain force implementations might be delayed due to important infrastructure shortfalls, and therefore additional funds should be made available for infrastructure. If those additional funds were made available, the United States would contribute roughly one-quarter of those additional funds and the other allies roughly three-quarters; however, infrastructure funding is agreed upon by consensus or not at all.

The Germans have thus far withheld consensus for an increase due to a budgetary problem. The result is that less money is going to be spent on infrastructure funding in this period, less by the Europeans and less by the United States. We will not compensate for the fact that we have not been able to reach agreement on increased infrastructure funding.

PREFINANCING FOR COLOCATED BASES

Senator **Stevens**. It is my understanding they get around this by requesting prefinancing for colocating bases. This year they have requested $28.6 million to prefinance minimum facilities and Congress has not put it up. The main reason is that that money was to come out of infrastructure funding and your answer seems to be implying that somehow we are not paying more but, in fact, we are, because of the prefinancing.

Mr. **Perle**. The $28 million in prefinancing is a small fraction of the increase that the NATO military authorities, quite properly, have requested. Prefinancing is not a device with which we are pleased.

Senator **Stevens**. Does that mean that we are paying when they should be paying?

Mr. **Perle**. No.

Senator **Stevens**. Are they paying for these facilities?

Mr. **Perle**. We are going without the facilities, unfortunately.

Senator **Stevens**. Then we can cut the $28.6 million out; is that right?

Mr. **Perle**. There may be some specific high priority items important to the United States with which we would wish to proceed ahead and should not be prevented from proceeding with because we can't get immediate unanimous agreement.

Senator **Stevens**. Which means, when we think we need them we pay for them without regard to the funds that everyone should contribute to?

Mr. **Perle**. The prefinancing concept entails an eventual payback once the burden is assumed by the alliance as a whole, when the required facilities are eventually included in an annual infrastructure slice or program.

MASTER RESTATIONING PLAN

Senator **Stevens**. I would like you to give this committee any indication that we have received repayment of prefinancing from the infrastructure fund. Are we also prefinancing the Master Restationing Plan?

Mr. **Perle**. We have just begun discussions with the Federal Republic on the Master Restationing Plan.

Senator **Stevens**. That is not my question. Are we prefinancing it?

Mr. **Perle**. There is at present no agreed Master Restationing Plan, Senator.

Senator **Stevens**. We have a budget request here for $26 million for construction of the first stage of the Master Restationing Plan, when it was supposed to come out of this other fund. Is that another example of where the NATO allies are not agreeing and we are going right ahead and building anyway. They know we will do it. They know you will come and ask for the money whether they contribute the money to the fund or not?

Mr. **Perle**. The Master Restationing Plan is not proposed for funding under the NATO infrastructure; that is part of a much larger problem. I don't know specifically what that $26 million would purchase.

Senator **Stevens**. Isn't the total estimated cost for the Master Restationing Plan $2 billion?

General **Smith**. No, sir, $1.2 billion.

Senator **Stevens**. Our money or their money?

General **Smith**. We hope to have through negotiations with the Germans for them to bear a major portion of that cost, and negotiations are now underway on trying to reach an agreement on what that cost-sharing will be.

Senator **Stevens**. Are we going to spend any money on that before they agree to pay any part of it?

General **Smith**. That $26.5 million you are talking about would be some money that would be spent before we got an agreement with them, but would be included in that $1.2 billion to be shared, with the Germans paying a major portion.

RESTATIONING AGREEMENT WITH WEST GERMANY

Mr. **Perle**. We have finally, Senator, just in the last few days, arrived at the beginning of an agreement to negotiate master restationing with the Germans. They take it seriously now, I believe, after a long time. For a long time we did not know where to send the letter because every time we approached the Germans we were told we were talking to the wrong minister. We were getting the runaround. I do not see any reason why I should not say that.

We have now made some progress and the U.S. team met with the German team a month or so ago. We signed an agreement. The German's side was represented by the finance ministry which I take to be an encouraging sign.

We are now beginning negotiations on the Master Restationing Plan. I do not want to claim too much, because negotiating these things takes time and effort.

Senator **Stevens**. We know of a report where the West Germans' top military official voiced doubts about the economic and political feasibility of the restationing plan. Again, it was reportedly said that it was easier to land cruise missiles on the moon than to move U.S. troops forward. Does that indicate a willingness to cooperate with the restationing plan?

Mr. **Perle**. I had not seen that.

General **Smith**. That statement, I believe, was made last summer by Brandt, General Brandt, head of the German Armed Forces. He unfortunately did say that. Since that time there have been discussions with him. That plan has been explained to him, and I think his attitude toward that plan is evidenced by the fact that the unwillingness of the German Government to negotiate has been modified.

Senator **Stevens**.We understand a West German study concluded it would not be worth the cost to move the German troops closer to the border. If the Germans don't feel it is worthwhile to move troops closer to the border, why should we move ourselves closer?

General **Smith**. The Master Restationing Plan is designed to do several things: It is, first of all, designed to move U.S. forces in Germany to better wartime positions so that it can enhance their tactical war-fighting capability. It is also designed to move U.S. forces from old, deteriorated facilities into new ones; and in the process of that moving forward into improved facilities the Army plans to build some facilities to accommodate the new weapons being brought into the force structure.

Senator **Stevens**. General, you tell me during this period of time you want more F-18's and B-1 bombers and a couple of new aircraft carriers and some new troops carriers in Europe, in a place where the Germans don't want to move their troops to?

General **Smith**. Mr. Chairman, in terms of the responsibilities of General Rogers and myself for U.S. forces in Europe, our first priority is to improve the capabilities of the in-being forces so that they can properly defend the interests of the United States, and that has a higher priority than adding additional force structure.

Senator **Stevens**. You are adding 21,000 new troops?

General **Smith**. Mr. Chairman, as I have said before, I am not being evasive, but I don't want to be misleading. I don't want to tell you things I don't know. I have not been able to come to grips with where that figure came from and how to justify that, and we are going to have to supply that for the record.

[The information follows:]

Troop Strengths in Europe

Unfortunately, there has been some confusion surrounding the number of additional U.S. forces we plan to send to Europe in the fiscal year 1981-83 period. Three numbers have been discussed that required clarification:

The first number is 20,500. The 1983 Defense Manpower Requirements Report showed that we planned to have 357,900 U.S. troops in Europe at the end of fiscal year 1983, a net increase of 20,500 over the number of U.S. troops that were actually in Europe at the end of fiscal year 1981. We have determined that the fiscal year 1983 projection of authorized U.S. military manpower in Europe included an accounting error in the Army column, and that the corrected figure for fiscal year 1983 planned authorization in Europe is lower by 7,300, at 350,600. Therefore, the "20,500 increase" is in error.

The second number is 13,200. Correcting the fiscal year 1983 figure as noted yields a growth from the actual fiscal year 1981 number to the revised fiscal year 1983 projected authorization of 13,200. The bulk of this increase (11,100) represents spaces that were authorized for Europe in fiscal year 1981 but which were not filled as planned (5,500) or due to ship deployments were not counted in theater on the last day of the fiscal year (5,600).

The third number is 2,100. Netting from the fiscal year 1981–83 growth of 13,200 the increase in European spaces that had previously been authorized for fiscal year 1981 (11,100) yields the number of additional U.S. spaces in Europe for which we are requesting authorizations in fiscal year 1983 over fiscal year 1981. This figure is 2,100. Therefore, the 20,500 figure is discarded as an inappropriate point of reference. The appropriate figure is either 13,200 actual-to-authorized growth or, alternatively, 2,100 authorized-to-authorized growth.

OUTMODED FACILITIES

Senator **Stevens**. What are you going to do with the outmoded facilities? We have some indication they may be turned over to the in-country forces; is that right?

Mr. **Perle**. Senator, that is one of the issues that will be part of this negotiation. There are a number of ideas about how the movement from one location to another might bear on the ultimate use of the existing bases.

Senator **Stevens**. If they are so outmoded and deplorable, we should not keep our own troops in them. Do we expect the Germans to put their troops in them?

Mr. **Perle**. They would not necessarily be maintained as military installations.

Senator **Stevens**. General Dawkins?

Statement of Brig. Gen. Peter M. Dawkins, USA

MASTER RESTATIONING PLAN

General **Dawkins**. Mr. Chairman, I thought it might be useful to expand a bit on General Smith's comment about the notion of the Master Restationing Plan, because I think it is responsive to both your and other member's of the committee's concern about avoiding having to put additional U.S. forces in Europe, and also to Senator Stennis' urging that we seek ways to stretch our dollars.

The MRP is an effort to do both of those things. On the one hand, if you believe, as we do very much, that the Soviet threat is not weakening but if anything strengthening, then to keep the deterrent effective we need to strengthen our war-fighting capability.

The Master Restationing Plan does allow us to reposition tactical forces in a way which increases that war-fighting capability. It does so, if the negotitions prove successful and as Mr. Perle said the early indications are very positive, by taking the total cost of that enterprise and having the Germans shoulder a large proportion of its cost.

Were we not to do that, one might have to consider increasing the size of U.S. combat forces in Europe, which all of us are seeking to avoid.

I would also, if I may, just mention the linkage to the host nation support agreement which you referred to earlier, Mr. Chairman.

You questioned the wisdom of our applauding arrangements for wartime support when the Germans, as you phrased it, were not living up to their peacetime responsibilities. That may not be fully reflective of the real significance of that wartime host nation support agreement.

Senator STEVENS. Is something I said untrue, General?

General DAWKINS. I think the point that ought to be understood is that if the Germans were not willing to provide these 93,000 reservists to support our forces, and we wished to have the war-fighting capability which those 93,000 will provide, we would be obliged to develop those forces here and equip them here and build strategic lift to carry them to the theater in the event of war, which would be many-fold more expensive. So, its contribution to the peacetime circumstances is that it allows us to not have to spend moneys in peacetime in ways that would be more expensive than this solution to a very crucial requirement for our war-fighting capability.

Senator STEVENS. I assume that if they are at war and we are willing to come to their help, that they will provide whatever assistance they think they have to have for their own defense, not for ours, for their own defense. We are there to defend them at that time. I really don't see this jumping up and down, clapping our hands over an agreement that in the event of war they will help us support them.

You can answer the question for me.

GERMAN BRIGADE SUPPORT

The 1982 supplemental budget request contains $23 million to retain and support 4,500 personnel associated with the 3rd Brigade of the 1st Cavalry Division in Germany. We were told that was to be inactivated in the fourth quarter of 1982.

Why are we requesting $23 million more for a brigade that was supposed to be inactivated in 1982 by the end of the fourth quarter?

Let me go back and explain. That $23 million was cut out and the cutback was agreed upon last year with the administration. That brigade was supposed to be deactivated by the fourth quarter of 1982. Now we see $23 million to extend it for 4,500 personnel and keep them in Germany. What are the facts about that?

Mr. PERLE. Senator, I think we will have to supply the details of that for the record.

Senator STEVENS. I think I would like to get the answer, if the general has it.

General DAWKINS. I am not qualified to give you the answer right now, sir. There were some differences in the planning for that particular unit and it ended up in the different arrangements, with it being unfunded for one quarter. We will have to get you the details of that, because I am just not familiar with the precise procedures that led up to that.

[The information follows:]

3D BDE 1ST CAV DIVISION

Budget limitations imposed on the Army during August–September 1981 required reductions in fiscal year 1982 and 1983 outlays.

To protect essential readiness and modernization programs, the Army leadership elected to reduce force structure; included in that reduction was inactivation of the 44th at Wiesbaden, GE (also referred to as 3d Bde, 1st Cov Division) in late fiscal year 1982 to achieve fiscal year 1982 and 1983 savings. The fiscal year 1982 budget, as amended in September 1981, deleted funds for the brigade in 4th quarter fiscal year 1982. In January 1982, as the fiscal year 1983 budget formulation process was finalized, the funds and manpower associated with the brigade were restored (as a consequence of the Polish crisis) and the fiscal year 1983 budget reflects that restoration. However, 4th quarter fiscal year 1982 funds were not restored.

The brigade is currently funded in the fiscal year 1982 budget for the first three quarters of fiscal year 1982; without approval of the supplemental, the Army will be forced to reallocate existing funds to support the brigade during the 4th quarter fiscal year 1982.

CLOSER BORDER POSITIONS SUGGESTED FOR GERMAN UNITS

Senator STEVENS. General, the bottom line for me is that I have the question of why U.S. troops have to be moved nearer to the border when the Germans don't indicate they want to move their troops nearer the borders, and why should they? They are now going to have pipelaying equipment, all kinds of commercial activity going across those borders day in and day out to build the largest pipeline in the history of the world to bring Siberian gas into West Germany, into France, into Austria, into the whole area, in order that their economy can be shored up by a new supply of gas. Why would they offend the Russians by moving closer to the border at the very time they are going to buy gas from the Russians?

I think we are missing the point. The Germans don't want to defend that border any stronger than you want us to spend billions of dollars to move U.S. troops closer to the border they don't want to defend?

General SMITH. They do want to defend that border. There are matters of judgment about where the forces should be. We don't agree with the Germans. We think it is best that our forces be forward so that they can carry out that defense early and hope to blunt any attack.

There are provisions that the German forces would move forward to their positions very quickly in the event of a time of tension or crisis. There is no difference of opinion on that particular point.

Senator STEVENS. Isn't it true they don't want to offend the Russians right now because of the commercial deals that they find so convenient?

GERMAN SUPPORT OF NUCLEAR FORCE DEPLOYMENT

General SMITH. Sir, I think they have certain relationships with Eastern Europe and particularly East Germany, that they value, but in terms of sticking to the decision for intermediate-range nuclear forces and putting them in Central Europe, the Germans have shown they are willing to offend the Soviet Union on a subject very important to the Germans and which they consider to be in their national interest. They are proceeding to support that decision.

Senator STEVENS. I should think the military ought to take a look at the loans being made by our NATO allies to Russia to build the pipeline at an interest rate of 7.8 percent, from one interest-free from France, and decide whether we really ought to be involved in protecting a border they don't want to protect, because they don't want to offend the Soviets.

It seems to me the message is not getting through to our Defense Department that the NATO people don't want to move forward. I don't know why we should move forward at a time when they don't want to move forward to protect their borders.

Mr. PERLE. Senator, we are concerned and as disenchanted as you are with the prospect of the Federal Republic of Germany receiving a considerable fraction of its natural gas from the Soviet Union. It has been the policy of this administration, unlike the preceding administration, to do what we can to discourage that development, because we think it is unwise and dangerous, for some of the reasons you imply in your question.

We are now carrying on consultations with the allies with a view to reducing the level of credits made available to the Soviet Union because, again, we think that those credits end up having the effect of easing the Soviet defense burden. That is, with those credits they do not have to make some of the hard choices we would prefer they would have to make.

We agree entirely with you on those concerns. We are doing whatever we can to try to bring about an agreement. Unfortunately, we are not alone in making that decision.

NEW DÉTENTE BETWEEN WESTERN EUROPE AND SOVIET UNION

Senator STEVENS. I realize we are not alone, Mr. Perle, but we certainly seem to be willing to proceed alone with regard to the NATO commitments without regard to their failure to keep their commitments, without regard to their opposition to our moving forward and without regard to the whole question of the new, new détente.

You say we have abandoned détente, the first time I have really known that this government had totally abandoned détente. They have not. I don't know whether you have spent much time over there lately, but they have not.

There is a new détente between Western Europe and Russia, and we are acting as though it does not exist.

Mr. PERLE. Senator, I spent a great deal of time (in Europe) last year, saying to the Europeans many of the things you have been saying to me today. I think it is quite right that there is in Europe today a nostalgia for détente that we no longer share, but I think we have to face up to the fact that we bear some of the responsibility for having encouraged the illusions associated with détente.

Senator STEVENS. Any further questions?

UPDATED NATO COSTS

Senator STENNIS. Thank you, Mr. Chairman. I just have reason to believe that this time you will be faced on the floor with a question about the estimate, some kind of estimate, about the cost of this situation in NATO and Western Europe, and it is a relevent question.

You can't afford, none of us can afford, to say we don't know, that we have no idea. There is nothing in the record to help any Senator in deciding how to vote and so forth. It is our duty to be armed. I am pro NATO, so I hope you continue to insist that we get an estimate of some kind and I think you gentlemen know that and appreciate it and want to comply.

It looks to me like, as I said, we may have all this on television as early as the debate this year. There will be a scrap over these dollars and priorities.

Mr. **Perle**. I was there on the occasion to which you referred earlier when you had the task of defending against that Mansfield amendment. We will do everything in our power to see that you have all the ammunition you need.

Senator **Stennis**. You ought to help. It will help. It will take more than it did then. I hope it is understood you are going to give us an estimate. I hear it mentioned that 40 to 60 percent of the cost can be attributed to these missions. I think we have to have something more definite than that. Certainly it must be brought up to date.

Mr. **Perle**. We will give you an estimate.

Senator **Stennis**. Thank you, Mr. Chairman.

[The information follows:]

Costs of U.S. Forces in Europe

We are developing a detailed estimate of the costs requested, in a manner that permits identifying those costs uniquely associated with our force deployments. We will forward the requested information to the committee as soon as it is available, and expect to have it ready in approximately one month.

INTRODUCTION OF ROBERT L. PFALTZGRAFF

Senator **Rudman** [presiding]. Senator Johnston, any other questions?

We thank you very much for appearing this morning.

Senator **Stevens** [presiding]. Gentlemen, if we may, our next witness will be Ambassador Robert Komer. We would like to have Dr. Pfaltzgraff come to the table. We would like to hear from both gentlemen before we ask questions if we may.

Dr. Pfaltzgraff, will you please proceed, sir. Thank you for taking your time to testify.

NONDEPARTMENTAL WITNESSES

INSTITUTE FOR FOREIGN POLICY ANALYSIS

STATEMENT OF DR. ROBERT L. PFALTZGRAFF JR., PRESIDENT, INSTITUTE FOR FOREIGN POLICY ANALYSIS, CAMBRIDGE, MASS.

UNITED STATES-JAPAN SECURITY RELATIONSHIP

Mr. PFALTZGRAFF. It is an honor and privilege to have the opportunity to offer this subcommittee my views on the security relationship between the United States and Japan and particularly, the question of defense burden-sharing.

In the Asian-Pacific area, no country is more important to the United States than Japan. Northeast Asia is the point of geopolitical intersection of three major power centers—China, Japan, and the Soviet Union. A stable power balance in the region and on a broader scale is not possible without the preservation of the close security relationship between the United States and Japan that has been forged over more than 3 decades since World War II.

Without Japan, the United States would find it impossible to maintain security commitments to the Republic of Korea; moreover, the strategic realtionship that has emerged between the United States and China would be jeopardized. Any major change in U.S. relations with Japan, in turn, because of the pivotal importance of Northeast Asia, would have ramifications of global proportions extending to other regions and in particular to the Atlantic Alliance.

This is the broad perspective within which the defense burden-sharing problems confronting the United States in its relationship with Japan in the 1980's should be addressed.

DEFENSE SPENDING IN JAPAN

Although Japan ranks eighth among nations in overall defense spending, her percentage of expenditures—0.9 percent—falls below that of any of our NATO allies. On a per capita basis the United States spends more than 10 times as much as Japan on defense. In real terms, however, Japan has shown a growth in defense spending—4.6 percent in 1982—substantially greater than that of our NATO Allies, some of whom have failed to meet the agreed alliance goal of 3 percent in real annual increases.

Together, Japan and Western Europe fall far below the 7-percent, real increase contained in present and projected U.S. defense budgets. However, the 4.6 real increase in Japan's defense budget represents a growth in governmental spending that contrasts with the lower increases in other categories of the Japanese budget, including such domestic programs as education, social welfare, and public works.

JAPANESE ARMAMENTS PROGRAM

The present Japanese armaments program is based upon the National Defense Program Outline that was adopted in October, 1976. Of importance here are not the detailed goals established for Japan but, instead, the fact that the assumptions upon which that program was based have come to be questioned in recent years in Japan. These assumptions are: First, that the defense capabilities of Japan need only to be sufficient to withstand an enemy attack until the arrival of assistance from the United States and, second, that the United States would not find it necessary to draw down forces committed to Japan's defense in order to meet contingenices outside the Western Pacific.

IMPORTANCE OF STRONG WESTERN PACIFIC SECURITY TO JAPAN

Several changes in the international security environment have cast doubt upon the validity of these assumptions. These include the buildup of Soviet military capabilities at all levels and, in particular, the need for the United States in the late 1970's to redeploy naval units from the Pacific to the Indian Ocean on behalf of security interests that are at least as important to Japan as they are to the United States. More than 70 percent of Japan's oil comes from the Persian Gulf region. Japan's economy would wither without access to imports of raw materials and to markets around the world for exports.

Since 1978 the Soviet Union has augmented its air and naval forces in the Asian-Pacific area and built new military facilities in the Northern Territories seized from Japan at the end of World War II. The Soviet invasion of Afghanistan in 1979, together with the tightened military relationship between Moscow and Hanoi, including access to air and naval bases in Vietnam near the vital sea lines of communication between the Western Pacific and the Indian Ocean, has heightened the security problems confronting Japan. As a result, to an unprecedented extent in her post World War II history, Japan has begun to give serious thought to the adequacy of her self-defense forces; however, this has yet to yield a domestic consensus of sufficient strength to enable Japan to make substantial increases in defense spending.

Successive Japanese Governments have done little to build the necessary public support for defense. Without defense spending increases beyond 1 percent of its GNP, Japan will be unable to complete its currently projected forces, let alone build even more adequate levels of military capabilities.

DEFENSE OF JAPAN WHITE PAPER

The Defense of Japan White Paper of 1981, an official publication of the Japanese Government's Defense Agency, acknowledged:

> Nevertheless, even if this Mid-Term Defense Program Estimate—the Defense program for the years 1980 thru 1984—is attained in its entirety, the nation's defense capability will fall short of the level as envisaged by the National Defense Program Outline.

Although it is possible to set forth a range of defense contingencies that might confront Japan, the most pressing security needs include the means to help safeguard sea lines of communication for a minimal 1,000-mile radius surrounding Japan, extending, for example, at least as far as Guam, and beyond 1,000 miles to the Strait of Malacca, through which Japanese commerce passes to and from the Indian Ocean.

In addition to naval forces for this purpose, including augmented capabilities against enemy surface units and the means to conduct antisubmarine warfare, Japan must increase her potential for air defense over her territory and over the oceans of immediate security importance. In light of the growth of the Soviet maritime forces, such missions could probably not be accomplished within currently projected increases in Japanese air and maritime self-defense forces.

In addition to its geostrategic importance in any military operation conducted by the United States in the Korean Peninsula, as demonstrated in the 1950–53 period, Japan holds the key to Soviet access by naval forces from the port of Vladivostok and, to only a lesser extent, by air power, into the Western Pacific. Most Soviet surface shipping in the Western Pacific is based at the port of Vladivostok. The Soviet ballistic missile submarine fleet in the Western Pacific is deployed from Petropavlovsk on the Kamchatkan Peninsula.

Without Japan's active assistance, the United States would find it difficult, if not impossible, to block the straits through which Soviet shipping must pass from the Sea of Japan into the other oceans surrounding Japan.

Control of air space over and around Japan, moreover, would be indispensable to efforts to maintain control of the sea lines of communication. To allude to such military contingencies is to provide the basis for a consideration, in real types, of the types of capabilities that should result from discussions of defense burden-sharing between the United States and Japan. It will be important that the United States and Japan develop a common assessment of such contingencies as the basis for more equitable defense burden-sharing.

The problems confronting the United States in its security relationship with Japan bear only slight resemblance to those facing the Atlantic Alliance. NATO has provided a multilateral framework within which a trans-Atlantic consensus on the level and type of German defense effort could be achieved. Nothing comparable has existed in the Asian-Pacific area nor is it politically possible to create such a multilateral security framework under prevailing circumstances.

As a result, Japan has made use of the latent apprehensions of her neighbors about rearmament to justify the limitation of defense spending to present levels.

To be sure, both the United States and Japan must remain aware of the sensitivities of other Asian-Pacific states in developing the appropriate levels and types of Japanese defense burden-sharing. If her spending for defense were comparable in percentagewise terms—3 to 4 percent—to the levels of our West European allies, Japan could provide a substantially larger self-defense force focused on maritime and air defense capabilities, together with a more adequate ground self-defense force for contingencies within the home islands.

JAPANESE COMBAT READINESS

Among the most immediate deficiencies in Japanese self-defense forces are those related to combat readiness, including inadequate stockpiles of mines, ammunition, missiles, and torpedoes, and insufficient facilities for training and equipment maintenance. There are some shortfalls in personnel below authorized levels. Steps have been taken recently to improve the infrastructure for command, control, and communications within the self-defense forces.

POLICY IMPLICATIONS RELATING TO JAPANESE DEFENSE BUILDUP

The United States should continue to encourage Japan to build forces capable of supplementing and, where necessary, replacing the United States, especially for missions relevant to control of the sea lines of communication and air defense. Several general policy implications are set forth for this purpose:

One, the United States must be prepared to engage in a greater consultative effort with Japan on all issues of general importance to the two countries.

A notable example of this need is the Japanese complaint about lack of advance consultation when the United States lifted its grain embargo against the Soviet Union in 1981, with Japan having imposed its own sanction against the U.S.S.R. after the Soviet invasion of Afghanistan.

It will be necessary to consider in as great detail as possible the major contingencies for which Japan's self-defense forces should be strengthened and to evolve a satisfactory joint command structure for such capabilities between the United States and Japan.

Two, until a more adequate domestic consensus emerges in Japan it will remain necessary for the United States to urge Japan publicly to increase her defense capabilities. The narrow Japanese domestic constituency, principally in the ruling Liberal Democratic Party—in support of gradual increases in defense—can be strengthened by the prodding offered by the United States. This must be accomplished by public means in order to have its intended effect.

Private efforts are not likely to have great credibility; however, such external stimuli should not take the form of congressionally mandated reductions in American force levels in the Western Pacific.

Three, however, attractive an effort to establish a linkage between economic issues and defense burden-sharing may seem, the huge Japanese trade surplus and justified American dissatisfaction with certain Japanese trade practices do not furnish a satisfactory basis for obtaining from Japan a greater defense effort.

Both sets of issues—trade and defense—must be addressed in the Japanese-American relationship. For example, it would not satisfy U.S. interests and needs for Japan to make major concessions on trade issues in return for nonaction on defense.

Four, it will be essential that Japan and the United States develop more equitable approaches to defense burden-sharing and trade policy. We shoud seek not to deny Japan markets in the United States but, instead, to achieve greater American access to markets in Japan.

Five, there has been discussion in Japan of a concept termed "comprehensive security," by which Japan could assume increasing commitments to economic assistance as one important dimension of security, while leaving to the United States, principally, the task of furnishing the military component of security.

The United States should welcome the proposed doubling in Japanese economic assistance which would make Japan the second largest donor after the United States. In per capita terms, Japan would spend more on foreign aid than the United States. However welcome such a growing Japanese role will be, it forms no substitute for sharing on a more equitable basis the defense burdens of security.

Six, the basis for a Japanese-American consensus on comprehensive security, from our perspective, lies in a greater contribution by Japan both to the economic and the defense sectors. In the latter case this means that Japan must do more for the maritime and air defense of the Western Pacific as the United States assumes broader security burdens.

Japan should also be pressed to make direct financial contributions to defense programs outside the Western Pacific. This might take the form of aid for specific projects related to U.S. military capabilities, for example, in the Indian Ocean.

Seven, the United States and Japan must decide whether the present security commitment of the United States to Japan should be replaced by one of greater reciprocity.

Do we wish to develop a more mature security relationship in which both parties, as in the case of NATO members, share defense obligations with each other—or shall we retain the American military protectorate providing for a one-sided U.S. commitment to Japan that is a legacy of the post World War II years?

To consider such a change, however, would necessarily open for debate in Japan the provisions in the postwar Constitution concerning Japanese defense forces. However this issue of reciprocity in defense obligations is addressed, the Japanese-American security relationship must be based in the years ahead upon a greater sharing by Japan of burdens for the common defense.

Thank you, Mr. Chairman.

Senator **Stevens**. Senator Rudman.

Senator **Rudman**. One brief question. That is an excellent statement.

RESPONSIVENESS OF JAPAN TO DEFENSE AND TRADE ISSUES

I notice you are very specific in separating trade from defense issues. Of course, you would agree, I assume, that the Japanese, at least up to now, have not been terribly responsive, and I don't consider the recent increase, considering the basis on which it is calculated, to be responsive to our requirements and our request for greater cost sharing.

Would you agree with that?

Dr. **Pfaltzgraff**. I would agree entirely. As I pointed out, Senator, in my statement, I believe that the Japanese should be contributing at least double in percentage terms, perhaps 3 percent, but certainly a lot more than 1 percent, in their defense budget as a percentage of GNP.

Senator **Rudman**. There is a feeling of a number of Members of Congress that I have talked to, that the only way to get the Japanese attention in this area is in the area of trade and, in fact, you have to tie the two together, because that is something they care about.

Dr. **Pfaltzgraff**. If you tie the two together, you run the risk of a situation in which the Japanese will make concessions in trade in return for nonaction in defense. That is my principal concern about linking the two, which is why I believe it is necessary that we make progress on both sets of issues.

Perhaps the linkage on trade lies within the trade sector rather than between trade and defense.

Senator **Rudman**. Whenever you start a negotiation, it seems to me, you try to assess your relative strengths and weaknesses. It seems to me we have a lot of strength in this negotiation; we have very little to lose. We are contributing enormously to their defense; they are not. They have an enormous imbalance of trade with us, and we are losing out on that and losing jobs in this country.

It seems to me we have a lot of weapons at our disposal if we decide to use them in the Congress, and I must say there is substantial support right now, I believe, if push comes to shove, to tie the two together.

Dr. **Pfaltzgraff**. I am sure that there is. We ought to use all the instruments at our disposal.

I would simply want to suggest the need to be very sensitive to the problem of assuring that progress is made both in trade and in defense and that linkages may exist between the two, but there may be even more important linkages within the area of trade.

Our principal objective is to get both greater access to Japanese markets and at the same time to get a greater Japanese defense commitment.

Senator **Rudman**. Thank you.

Senator **Stevens**. I have only one question.

LIMITATIONS OF RECIPROCAL JAPANESE DEFENSE TREATY

If the Soviets decided to attack our continent directly, as I understand it, the Japanese are not committed to help defend us and it would take us a substantial period of time to get our equipment back from Japan. Do you agree with that?

Dr. **Pfaltzgraff**. Senator, that is a matter of fact. As I indicated in my concluding point, the Japanese-American security relationship in this sense is an unequal treaty. The United States is committed to the defense of Japan. Japan is not committed to a reciprocal commitment—that is participation in the defense of the United States. The reason for that lies in the postwar Japanese Constitution in which Japan was prohibited from sending military forces outside Japan, itself.

We, of course, even stretched that postwar Constitution to suggest that the Japanese would position maritime forces 1,000 miles from Japan. So, in a sense—and I wanted to bring this point out in my concluding paragraph and I am glad to have this additional opportunity—we are talking here about a fundamental premise in the Japanese-American security relationship. Is it to be an equal treaty in which an attack upon one is an attack upon both, or is it to be an American commitment only to Japan?

Senator STEVENS. I am sorry. I forgot to call on my friend here, Senator Johnston.

Senator JOHNSTON. Thank you, Mr. Chairman.

JAPANESE TRADE CONSULTATIVES

That was an excellent statement. You say we need a better consultative effort. We need to urge, to prod, to press, to use some of your verbs here, but we should not have a congressionally mandated reduction, that we should not have linkage, and the fact that we should talk and not have a club in the closet. It seems to me that the Japanese are good friends, are about as good at consultation and negotiation as they are at making automobiles, which is to say that they get the better of us every time.

For the last many, many years we have been talking and consulting and negotiating and they are still at less than 1 percent and they still have trade barriers and they still say they are going to do something about it next year, next month, sometime in the distant future, their politics prevent it, they have delicate political problems.

When do we say that "We want to consult but if you don't consult, if you don't do your fair share, and the imbalance is outrageous, that at some point along the way there will be some linkage"?

How do we get them to consult and do what is proper and fair?

Dr. PFALTZGRAFF. First, I would continue to speak publicly about the need to do this. I would continue to put pulic pressure upon them. Now, putting public pressure upon Japan is useful because there is growing in Japan a small constituency within the ruling Liberal Democratic Party which does understand the need for Japan to do more in defense.

Senator JOHNSTON. Why is there a need if the United States is going to pay the bill under the present situation, and if all we are going to do is consult and not in effect withdraw from paying the bill?

Dr. PFALTZGRAFF. I said there is a growing concern in Japan among a limited group of people in the ruling Liberal Democratic Party on this issue. If we publicly prod, I believe that we allow this group to gain greater leverage within Japan in putting pressure on the Japanese Government. Hence, I would be in favor of public prodding at various levels in order to achieve a greater Japanese self-defense capability.

I believe that the basis does exist in the early 1980's to see Japan move into a position of greater defense. This, I believe, is a change that has been occurring in Japan in recent years. I have tried to indicate some of the reasons why I think that is beginning, but it is not strong enough to sustain the kind of defense effort that we would like. I believe, therefore, that a great deal of pressure is useful against Japan for this purpose.

PUBLIC LINKAGE IN TRADE AND DEFENSE POLICY

Senator **JOHNSTON**. Suppose we declared a public linkage in both trade and defense policy between what we do and what we expect of them, what would be the result?

Dr. **PFALTZGRAFF**. I think the result on their part would be a greater degree of responsiveness; however, in doing this I would want to make sure that we did not allow the Japanese off the defense hook by making concessions only on trade, because regardless of what happens in trade or defense, the other issue must be addressed.

Senator **JOHNSTON**. In other words, linkage is all right provided you make it two-pronged and include both defense and trade and not let them off the hook on defense by trade concessions?

Dr. **PFALTZGRAFF**. Precisely.

Senator **JOHNSTON**. So that a linkage is proper and might produce a real response, provided you have the duality of trade and defense?

Dr. **PFALTZGRAFF**. Provided the two are linked in a way which does not, as I have said and as you have said, Senator, produce results on one side or the other without having the intended effect on both sides.

We must also be concerned, however, in the trade sector about the possibility of Japan's increasing trade with, for example, the Soviet Union, which we would not like to see, if Japan loses markets here and in Western Europe.

Senator **JOHNSTON**. I don't know who can buy the Toyotas in the Soviet Union.

Dr. **PFALTZGRAFF**. We want more defense and fewer Toyotas.

Senator **STEVENS**. I assume they will have $11 billion in hard capital annually from their sales of gas to Western Europe. They will be able to buy a lot of Toyotas soon.

Thank you very much.

Dr. **PFALTZGRAFF**. Thank you, Senator.

Senator **STEVENS**. Ambassador Komer.

FORMER AMBASSADOR AND NATO AFFAIRS ADVISER

STATEMENT OF HON. ROBERT W. KOMER, FORMER AMBASSADOR AND NATO AFFAIRS ADVISER, OFFICE OF THE SECRETARY OF DEFENSE

U.S. RELATIONSHIP WITH ALLIES

Mr. **KOMER**. Mr. Chairman, I will submit my statement for the record.

In response to your staff, I tried in my statement to come up with a set of specific and concrete initiatives which would enhance burden-sharing, which is another way of saying to get the allies as well as ourselves to do a lot more; but before I answer questions I would like to cite a few highlights of the relationship we have with our allies and why it is very important to use at a time when we are becoming second in military strength, at a time when our relative economic power is declining.

There is one single factor more than anything else that operates to our strategic advantage in the East-West conflict and that is, fortunately, we are blessed with a lot of rich allies who can contribute a great deal to the common defense, whereas, the Soviets in strong contrast have a few poor ones, most of whom are a net drain on the Soviet exchequer.

I think in almost every case our allies contribute more to the common defense that any U.S. subsidies to them.

ALLIED CONTRIBUTIONS

I would like to point out that the allied contribution is a lot bigger than commonly realized. Previous witnesses have told you some things. I would like to add the fact that most of our European allies have conscription, which means they get more manpower for the buck. In fact, in my day we did an analysis in the Department of Defense in which we computed allied defense contributions on the basis that they paid their manpower at U.S. rates. The result was an increase of 20 percent in their spending which would bring them up to a level as of 1979 about equal to ours.

They provide us a lot of real estate free. They provide us a lot of bases, mostly free.

Last but not least, I point out a historical fact: In the last four wars we have fought our allies have provided the battlefields and they have incurred enormous destruction, while the United States, itself, went unscathed. I don't know how you quantify the destruction that they received or how that weighs in the defense balance, but I think it makes a lot of sense for us to have a forward defense strategy to fight our wars as far as possible from U.S. soil and the fact that the allies to provide potential battlefields in the future, it seems to me, is a very important part of burden-sharing.

ALLIED PERSONNEL STRENGTH REDUCTIONS

I would also like to say that the NATO allies are not reducing their strength. It may be, although I had never seen this figure before, that they have reduced their active manpower by 56,000. This report of the Department of Defense last year to the Congress on allied commitments to defense spending suggested that over the last 10 years they have made even more substantial reductions in manpower. But if you look at the tables you will see this has been very largely Italy and the United Kingdom and that, in fact, countries like Germany, Japan, and Turkey have substantially increased the manpower which they provide.

In any case, what I would like to really point out is that defense is not just a matter of manpower. After all, since the Vietnam conflict we Americans have reduced our military manpower much more substantially than any other ally. I think we drew down from about 3 million men at the peak of the Vietnam conflict to about 2 million right now. That is a much bigger drawdown than any ally.

In any case, I think what we have tried to do is something you were talking about earlier, which is to try and streamline their forces and spend less on people costs so that they can invest more in new tanks, guns, and planes to equip their forces properly.

DECLINE IN U.S. DEFENSE SPENDING

U.S. defense spending also declined. It all depends on what period you take. If you look at the decade of the 1970's, our defense spending actually declined in real terms from 1969 through 1975 and our strength in Europe declined substantially over an entire decade, roughly 1965 to 1975. Oh yes, for a very simple reason, and that was that we robbed our NATO forces, and I think rightly so, to fight the Vietnam conflict.

Senator **Stevens**. The numbers have remained almost constant since 1975.

Mr. **Komer**. The flag remained constant. I stand corrected, but I thought we shifted a lot of manpower out of our units in Europe in order to send them to Vietnam for their 1-year tours.

General Taylor was cited as saying we could not have an effective defense of Western Europe. I am not as pessimistic as he is. My experience has been more recent, although my military linkage by no means has been anywhere near as distinguished.

I think the figures are in this Defense Department report of last year, sir. I think the testimony that ought to rule is the military judgment of the current NATO Commanders who feel that while our NATO forces are inadequate, we are within sight of an effective conventional defense, at least against the initial Soviet blitzkrieg for which they are structured.

TROOP STRENGTHS IN EUROPE

I would like to make another point about troops in Europe: They are already two-thirds of the way to the Persian Gulf. If indeed we had to defend against Soviet aggression aimed at depriving the West of Persian Gulf oil, I should think that the European allies would be quite willing to see our forces in Europe move on toward the Persian Gulf. They are already across the Atlantic, which means that the airlift and sealift problem is a great deal less significant.

The problem, however, that you have raised, and I would like to contribute to, is how do we get more rational burden-sharing, how do we get the allies as well as ourselves to do more?

RAPIER DEAL WITH BRITISH

I have proposed in my statement a number of concrete ways. I think a very good example—and I am sorry Senator Andrews is not here—is the Rapier deal we worked out with the United Kingdom, because there we agreed we would buy several batteries' worth of the British air defense missile to defend our air bases in the United Kingdom if the Royal Air Force would man them.

Since we are very high in people cost and since equipment, at least comparatively, is less expensive over here than it is in Europe, we thought that was a very good arrangement. I think that sets a very desirable precedent.

In principle, I sympathize with Mr. Andrews' idea that maybe what we ought to do is provide more equipment in Europe and have the Europeans man them, since they do have a lot of trained reservists, and their chief deficiency is in modern equipment. Of course, they would have to learn how to operate our tanks and shoot our guns, but I don't think that is beyond the wit of man.

We started a lot in Harold Brown's Defense Department in the way of burden-sharing initiatives. The 3-percent real growth goal that we converted into a pledge by heads of state was a measure designed to get the allies to do more. We were planning at the time to do more than 3 percent. I would submit that the actual facts suggest that we have got more defense spending out of the allies, most of whom have increased their defense spending in real terms over the last several years, by having that pledge and by signing them on to it, than we would have gotten out of the allies if we had not had the NATO 3-percent, real growth pledge.

I fell the same way about the NATO long-term defense program. We designed that as a means of getting the allies to join us in improving our joint capability in a whole series of high priority areas like command, control and communications, electronic warfare, rapid reinforcement and things like that.

Now I think we have lost a lot of momentum in the long-term defense program, partly because we have had our eyes fixed elsewhere.

I would suggest that if the committee wants a framework by which to seek additional burden-sharing, a framework which is already agreed to by our other NATO allies, it might take a look at the long-term defense program and encourage the administration to do the same.

We started a lot of projects for combined research and development, for coproduction of weaponry, so that the Europeans could produce weapons we had already designed and not duplicate our design costs.

There are a large number of other things. Weapons family projects, which we started, ought to be revived and expanded.

JAPANESE DEFENSE SPENDING

Lastly let me say a word about Japan, because I guess I pushed harder in the Defense Department than anybody else to pressure the Japanese to spend more.

I agree with almost everything that Mr. Pfaltzgraff said in his splendid statement, except for one thing: I think we ought to link defense and economic negotiations with Japan. Our experience with the Japanese is that they will talk to us until the cows come home, but then they will carefully measure the absolute minimum that they have to do in order to buy us off for the time being, and then they will grudingly and slowly do that. This has been the history of our economic negotiations. This is the rationale behind the Japanese increasing their defense spending in real terms this year by one-tenth of 1 percent when they are already under nine-tenths of 1 percent of gross national product.

I submit that we are going to have to find some different ways to get our Japanese allies to meet the defense obligations which, I agree with Mr. Pfaltzgraff, we ought to make a good deal more reciprocal than in the past.

Mr. Chairman, since I gather I am the last witness, I will shut up now and try to be helpful on any questions you might have.

[The prepared statement of Ambassador Komer follows:]

PREPARED STATEMENT OF HON. ROBERT W. KOMER

FORMER UNDER SECRETARY OF DEFENSE FOR POLICY

I am grateful for the opportunity to testify before this Senate Appropriations Subcommittee on the importance of greater and more sensible burdensharing between the U. S. and its many allies and on what might be done to increase a rational division of labor among us. Let me speak from practical as well as analytical experience, because on top of having been project leader of three major RAND Corporation studies largely devoted to burdensharing proposals during 1973-1976 I was the chief architect of numerous real life burdensharing initiatives during 1977-1980 as advisor to the Secretary of Defense on NATO Affairs and then UnderSecretary of Defense for Policy. Some have said that under the encouraging aegis of Secretary Harold Brown I was the most prolific and innovative designer of burdensharing proposals in the history of the NATO alliance. I wish I could say I was the most successful designer (and indeed we did enjoy a significant degree of success), but many of our efforts proved abortive, others have not yet come to fruition and yet others are no longer being pursued with the vigor they deserve.

I. ALLIES ARE OUR GREATEST STRATEGIC ADVANTAGE

But before suggesting specific ways in which the U. S. might again promote more rational burdensharing, let me put the issue in proper context by pointing out the enormous competitive advantage accruing to our nation from the alliance system we've created and lead. At a time when the USSR has long since outstripped the U. S. in military spending, especially in all-important defense investment, we are doubly fortunate in being blessed with a large number of rich allies (and quasi-allies) in strong contrast to a USSR which has only a handful of poor ones. All of our allies contribute more to U. S. defense than it costs the U. S. taxpayer to help defend them, while most Soviet allies are a net drain on the Soviet exchequer.

II. BURDENSHARING REVISITED

Collectively, our allies -- including NATO, Japan, South Korea, Australia/New Zealand, Spain, etc. -- spend about as much on defense as the U. S. They contribute far more active men under arms. Add another series of countries whose interest in defense against Soviet expansionism parallels ours -- like many oil-rich Arab states, Thailand, Philippines, Israel, Sweden, Switzerland, even China, etc. and their contribution is yet larger. Over the decade of the 1970s their outlays increased more rapidly than ours, though this is shifting now. True, our NATO allies alone spend less than we do, but as a 1981 DOD Report on Allied Commitments to Defense Spending shows (pp 7-8) they mostly have conscription, hence get more men for the buck than we do for expensive volunteer manpower. If their 1979 manpower costs were computed at U.S. pay rates the value of their defense outlays relative to ours would go up about 20%, to about the same as the U. S.

Nor should we ignore all the other contributions which our allies make to the common security. They provide us with huge amounts of usually cost-free real estate for bases and garrisons indispensable to a forward defense far from U. S. shores. They provide billions of dollars worth of peacetime and projected wartime Host Nation Support (especially the ROK, Germany, England, and Japan). Witness, the agreement just signed in Bonn whereby Germany will mobilize 93,000 reservists to provide logistic support for U. S. reinforcements, some 93,000 men that we will no longer have to mobilize and deploy overseas.

Lastly, our allies have traditionally supplied something of incalculable value. In our last four wars they have provided the battlefields -- and would again -- incurring vast wartime devastation while U. S. soil has gone untouched. Shouldn't this be factored into any burdensharing calculation?

We in DOD made repeated efforts to come up with formulas which would define equitable burdensharing, but for reasons aptly illustrated by my last point, it proved impossible. The "prosperity index" described in the 1981 DOD Report I mentioned is one ingenious example. It shows the allies in general bearing a comparable share of the burden to the U. S.

Unfortunately, this hides the fact that some of our richest and most important allies -- Japan, Germany, Canada, Denmark -- fall farthest behind. I had to tell the Secretary of Defense that there was no "magic formula" by which to measure fair shares.

III. WITHDRAWING TROOPS FROM EUROPE WOULDN'T SAVE ANY MONEY

Nor would pulling our troops back home save us a plugged nickel. It would in fact cost us more money, as DOD analyses have repeatedly shown, because we would have to rebuild old bases or build new ones to hold them. The only way in which bringing troops back home would provide significant savings would be if we eliminated them. Does anyone seriously suggest that we could make do in today's turbulent world with fewer than 16 Army and three Marine divisions, or a smaller Navy and Air Force?

By the same token it is highly misleading to talk about the high cost of maintaining overseas deployments. Unless we opt to reduce our forces, the only valid measure of their overseas deployment cost is the differential between what it costs to maintain them overseas -- where the threat is -- versus the cost to keep them at home. This is at most a few billion dollars (leaving aside the cost of bringing them home and then buying a lot more sealift and airlift to send them rapidly back overseas again in a crisis). From a strategic viewpoint, I would argue as a former top defense planner that the net cost of our overseas deployments is modest indeed compared to their deterrent value.

IV. NEED FOR MORE RATIONAL BURDENSHARING

On the other hand, I'm not arguing that either the U. S. or its allies are yet doing enough for the common defense. Given the decline in relative U. S. military power vis-a-vis the USSR, and the relative allied gain in economic power vis-a-vis the U.S., they as well as we need to do more. This is a matter of sheer self-interest for them as well as for us. But as I stressed in an *Armed Forces Journal* article last October, "the trick is how to get it" -- how to devise practical real-life burdensharing schemes to which we all will contribute. Harold Brown's Defense Department launched the first broad scale attempt to generate better and more efficient burdensharing since the end of World War II -- via two NATO Summits, the NATO Long-Term Defense Program, the Three Percent Real Growth formula, Host Nation Support Agreements, TransAtlantic bargains, enhanced NATO infrastructure programs, arms collaboration projects, more of a two-way street in reciprocal equipment purchases, and many other systematic initiatives. Therefore, as the chief architect of many of these initiatives, I feel I can speak as a voice of experience in how to do better from here on out.

The first requisite is for the current Administration, far from pulling back from our allies, to rededicate itself firmly to greater Alliance Cooperation. The upcoming NATO Summit in Bonn provides a splendid opportunity to do so.

Greater and more efficient burdensharing via joint programs of all kinds is in my judgment the only viable road toward a stronger collective defense at a cost politically acceptable to free societies. Hence it is regrettable that this Administration let momentum flag on a number of promising initiatives which its predecessor started, instead of pressing them harder and more effectively, with all the leverage that larger U. S. defense outlays provided. It is not too late to reverse this course, instead of focussing so exclusively on a unilateral U. S. buildup, while letting our alliance bonds fray.

V. A NEW MINDSET IS NEEDED

Indeed, both we and our allies have got to stop thinking so exclusively in national instead of coalition terms. Most wars are fought by coalitions, not by one country against another, and we ignore this reality at our peril. Yet we are all -- Republicans and Democrats , Executive Branch and Congress, U. S. and allies, civilians and military -- afflicted by what JCS Chairman General Jones aptly calls "the sin of unilateralism," thinking and posturing in peacetime as if we were going to fight the next war alone. Congress has already launched a number of promising moves in this direction, such as the Culver-Nunn amendment. I would encourage it to do more.

VI. SOME SPECIFIC PROPOSALS

Let me turn now to some concrete avenues toward greater cooperation, which I can elaborate on if desired:

1. For example, why doesn't Congress compel our Services to give a fair shake to competing European equipment, when buying a little more on the two-way street we encourage the allies to buy far more from us.

This could be done by denying funding in specific cases. I would be glad to cite examples.

2. The Congress could also require DOD to report within six months on progress toward implementation of the NATO Long Term Defense Program, with reasons why, and naming recalcitrant countries, when adequate progress has not been made. The TransAtlantic Bargain of greater European support for rapid U. S. reinforcement, the Integrated Air Defense System, the C^3 interoperability measures, and the electronic warfare program are only a few major examples of the kind of rational burdensharing measures encompassed in the LTDP. If the Committee wants a framework for greater burdensharing I offer the alread agreed LTDP.

In fact, the Congress has already mandated a similar annual report under the Culver-Nunn Amendments to Public Law 93-369, 94-106, and 94-361. Yet I believe that the last annual DOD report on Rationalization and Standardization Within NATO was submitted by Secretary Brown in January 1981. It is past time for the present Administration to be heard from.

3. Host Nation Support. This is one of the most fruitful ways in which our allies can share the burden of wartime and crisis support of U. S. forward deployed or reinforcing forces. They can plan for and prepare in peacetime to provide a broad range of logistic and other support from earmarked civil assets or their reservist establishments. The peacetime costs are modest, if any, and in wartime we'd be happy to pay for all such goods and services, just as we'd expect the allies to pay for aid we'd provide them. Much has been done along these lines but in my professional judgment we've barely plumbed the potential.

a. As a matter of policy DOD should plan on the basis that our allies would provide POL, foodstuffs, transport, etc. for out initial wartime requirements on their soil -- and negotiate implementing agreements with our allies. DOD should also request our allies to mobilize reservists to perform those support and security functions for which we would otherwise have to deploy U. S. support elements overseas. The recent U. S./German agreement shows what can be done.

b. Now that we face a possible need to deploy to yet a third major theater, the Persian Gulf, it is ridiculous for us to have to plan on carrying coals to Newcastle by shipping POL to the area to defend Persian Gulf oil. We should ask the oil-rich PG states to stockpile the requisite POL products and potable water to meet the programmed needs of the Rapid Deployment Force. At my recommendation, Secretary Brown issued a directive to this effect. Congress might inquire what has been done.

c. A pathbreaking precedent has been set by the novel arrangement whereby the U. S. is buying several batteries of British RAPIER SAMs to defend U. S. airbases in the UK provided that the British will man them. I promoted this deal as a precedent whereby we would in other countries offer to procure air defense equipment (or share the procurement costs) if the allies, whose manpower and operating costs are usually far lower than ours, would man them.

d. The LTDP called for our allies to provide ships and civil aircraft to help transport U. S. reinforcements to Europe and resupply them. To date over 600 ships have been offered but less than 100 planes. We should press our allies to earmark more air transports so that we can get there in time to help defend them, especially if we have to meet a prior or simultaneous contingency in the Persian Gulf.

e. As a spur to action, Congress should ask DOD for a separate report on Host Nation Support, including what additional wartime and peacetime HNS it plans to seek in all theaters, not just the Europeans.

4. Expand the NATO Infrastructure Program. This is one of the best burdensharing techniques ever devised. Because the U. S. is a major recipient, our effective share is only 20%. In effect, we get $5 worth of common funded facilities for every dollar we invest. In 1977-78 NATO painfully negotiated a $5 billion, five-year slice (1980-84) to be programmed and spent as fast as possible to meet urgent needs and then replenished even before the five-year period was over. But our German allies in particular have been stalling the replenishment process for over two years now despite repeated pleas by Secretary Brown and Secretary Weinberger. Congress should join DOD in urging the President to press Chancellor Schmidt to remove the roadblocks to this urgently needed program.

5. Collocated Operating Bases. Among other things, we have enough tactical air squadrons here in CONUS to triple our tacair strength in Europe within a week or so, as called for in the rapid reinforcement part of the LTDP. This airpower could get a great equalizer. As General Charles Gabriel CINCUSAFE and now to be Air Force Chief of Staff has complained, however, the biggest bottleneck in this program is the lack of suitably stocked and equipped airbases to which to deploy. He has called solving this bed-down problem his highest single priority, and urged our allies to join us in developing "co-located allied operating bases"(COBs), allied bases on which we can tenant. But this already existing program is stymied by lack of U. S. and allied funding. Since it is a lot cheaper for the allies to help pay for upgrading existing bases for U. S. use than to buy multi-million dollar aircraft of their own, you'd think they'd jump at this sweetheart deal. Well, think again. However sensible this form of burdensharing, most COBs have yet to be readied. I urge Congress investigate this delay.

6. Arms Collaboration. The wasteful duplication of research, development, and procurement among the allies is a scandal. Why do the U. S., UK, France, and Germany -- the four big NATO arms producers -- each design their own tanks? Why is our communications gear so non-interoperable? The possibilities for fruitful burdensharing are enormous. We need more:

(a) co-production schemes;
(b) cross-licensing of equipment;
(c) agreement on "weapons families" whereby the U. S. would lead in developing one member of the family and our allies in developing another; and
(d) integrated R&D planning to limit wasteful duplication.

7. Common Training. Realistic combat or even basic training has now become a very expensive proposition. It costs billions a year for the U. S. alone. Yet basically every ally has its own training establishment, often sinfully underutilized. The NATO Joint Jet Pilot Basic Training Program, whereby we train pilots from many NATO nations, and they pay the out-of-pocket costs, is an example of what can be done. But it took

several years to negotiate, and it only scratches the surface of what's possible.

VII. CONCLUSIONS

If Congress is serious about greater and more efficient burdensharing which will produce much more defensive bang for the buck or deutschmark, there are literally dozens of ways in which this can be done. In fact, accelerating the pace of alliance cooperation is a strategic imperative, and one in which all our allies look to the U. S. as a leader of the Western Alliance to give a strong lead. Developing practical schemes for such cooperation is feasible -- we've proved that -- if we are willing to take the initiative and invest the necessary time and money. I urge this subcommittee to help provide this lead.

U.S. PERSONNEL COSTS

Senator **Stevens**. Thank you very much for your statement, Mr. Ambassador.

I am just constrained to say that we still have more men under arms per capita than any nation in the free world, and at a greater dollar cost than any nation in the free world. That is our basic problem.

Mr. **Komer**. You are right, sir, but that is largely a matter of U.S. political choice. Our manpower is so expensive because we gave up the draft. If we reinstrated the draft, I am not sure it would save any money under present economic circumstances because we would probably draft on the order of 1 out of 10 men; the other 9 would go off into the economy and make money.

Should we then take the 10 percent that we draft and pay them $100 a month, or $75 a month, like I got paid in World War II, in the beginning? I think that would be double inequity; therefore, I am not sure you save a lot of money if you return to the draft.

The Europeans have been smarter; they have kept their people cost down, though not as far down as the Soviets have, unfortunately.

Senator **Stevens** I, too, was drafted in wartime but my forefathers came to this country to avoid a peacetime draft. Some of us have it in our bones that there should be none.

Senator **Johnston**. An excellent statement, Mr. Ambassador. I have no questions.

Senator **Stevens** Thank you very much, Mr. Ambassador.

PREPARED STATEMENT

Maj. Gen. C. Emerson Murry, Adjutant General of the North Dakota National Guard was unable to attend the hearing. His prepared statement will be inserted in the record at this point.

[The statement follows:]

PREPARED STATEMENT OF MAJ. GEN. C. EMERSON MURRY
ADJUTANT GENERAL
NORTH DAKOTA NATIONAL GUARD

SUBJECT: 1990 VISTA Study of the Future of the Army and Air National Guard

Mr. Chairman, Members of the Defense Subcommittee of the Committee on Appropriations.

My name is Major General C. Emerson Murry. I am the Adjutant General of the North Dakota National Guard, but am appearing here as Vice Chairman for the Army Subcommittee of the VISTA 1999 Study Committee which was charged to review the probable future requirements that would or could be placed upon the Army and Air National Guard during the balance of the 80's and 1990's. I am here at the invitation of Mr. Dwight Dyer, Staff Director of the Defense Subcommittee.

The VISTA 1999 Study was made by Senior National Guard Army and Air Officers at the request of the National Guard Bureau. It was intended to be a "no holds barred" review of opportunities and problems, of the National Guard, and ways it would most likely be called upon to serve the Nation and their respective states during the 1980's and 1990's. My presentation today will relate primarily to personnel and force structure matters that were contained in the VISTA 1999 report.

Among the principal findings of the report in regard to the environment and threat of the 1980's and 1990's are:

SUBJECT: 1990 VISTA Study of the Future of the Army and Air National Guard

1. United States forces will continue to be stationed on a major scale in Europe and upon a lesser scale in Asia and the Pacific areas.

2. Europe is not necessarily the most likely battle ground. Conflicts related to resources that are essential to our safety and way of life in many near as well as distant areas of the world are possible. Problems will exist because of local instability and nationalism as well as conflicts initiated and supported by our adversaries through material, technical, and direct assistance and by surrogate manpower.

3. The possibility of increased domestic instability because of socio-economic problems and terrorism brought on by divisive issues is an area that could further involve the Army and especially the National Guard.

The report notes that the Active Component of the Army is not sufficiently balanced between combat, combat support, and combat service support forces to deploy, employ, and sustain the combat forces in the diverse areas of the world for which it may have a responsibility. The National Guard non-divisional combat forces (independent brigades) need to be expanded, as they are not structured to provide adequate command and control, combat support and combat service support to meet the missions they would likely be called upon to perform. The United States Army Reserve is not adequately structured, manned, or equipped to furnish the combat support that would be necessary.

The Chief of Staff of the United States Army has urged that the Active Component be increased to at least the 800,000 manpower level which he estimated is the level sustainable in the all-volunteer environment. The study committee believes that first priority in any increase in manpower in the Active Component should be given to combat support and combat service support units in order to provide the required balanced force. Any additional Active Army divisions should be provided through the use of more National Guard round-out brigades and other units. However, the 800,000 manpower level will not be sufficient personnel to even provide fully balanced forces.

Assuming the validity of the 800,000 personnel ceiling, and assuming there will be no immediate resumption of the draft, the report notes that there will be no choice but to place additional force structure for combat and combat support units, with some increase in combat service support units within the Army National Guard and the U.S. Army Reserve structure. The committee has confidence in the ability of the Army National Guard to recruit and retain sufficient numbers to reach a total of 450,000 personnel during the interim period until a national decision is made in regard to a draft. To achieve this, the Army National Guard must be properly resourced and provided the necessary incentives. In the incentive area, it is necessary that both enlistments and reenlistment incentives be provided to personnel in all units, with perhaps special bonus incentives to those filling hard skill or less popular military occupational specialties.

It was the committees firm recommendation, that in recognition of the ability of the Army National Guard to provide an increased contribution to the Total Force and of its inherent fiscal, personnel, and energy efficiencies, additional activities that can reasonably be performed through the use of a partially manned full-time force and a force of part-time soldiers, should be assigned to the Guard. Such activities in the non-combat area include the training of specialists to provide both peace time and war time support in the fields of maintenance, communications, transportation, medical, and supply. The Air National Guard has clearly demonstrated the capability of the National Guard to maintain and support complex equipment in a superior manner. If properly resourced, the Army National Guard can expand its role in a similar fashion.

Because the Active Army, as well as other Active Components, have grown so rapidly in cost and in complexity of equipment,

it is probably not practical because of the availability and cost of skilled manpower to substantially expand Active Army combat units. The National Guard has clearly demonstrated a willingness and capability to support additional balanced force structure. Adequate command, control, and support elements must be added to permit the Total Army to meet the national needs within anticipated budgetary and manpower constraints. Specifically, in regard to the Army National Guard, these should include:

1. Tailoring certain existing Army National Guard separate brigades for specific missions, by providing equipment and training programs for probable missions and deployability in specific areas of the world. Examples of this might be in South and Central America, where Army National Guard units with concentrated populations of Hispanic heritage could play a key role in improving our relations with those countries. These separate brigades should be provided with a moderate slice of combat support and combat service support elements to insure at least limited self-contained sustainability without complete reliance upon a division or corps for support, since such division or corps may not be present.

2. Create in the Army National Guard one or more extremely light air transportable infantry divisions. Time would probably not permit this force to be equipped with the latest, most complex, and expensive weapons systems. They should be established relatively early in the 1980's. Innovations such as the use of light, rough terrain vehicles for rifle or light units, light but lethal anti-tank weapons (such as the new Finnish model Raikka 150) would provide a mobile and all terrain capability to the Army that will be needed for a variety of contingencies. The first test units for these new light divisions could be initially formed from some of the remaining unattached Army National Guard brigades. Thereafter, with suitable financial incentives and other resources necessary, one or more new light divisions could be recruited anew by the National Guard.

3. Create at least two new divisions of the Army National Guard made up from existing but presently separate National Guard brigades. This could and should be accomplished at the earliest possible date.

4. Create at least two additional Army National Guard division headquarters to provide command and control for other Army National Guard and separate U.S. Army Reserve brigades that may be assigned to them for special missions upon mobilization. Designate support elements from within the National Guard or Army Reserve for the normal division support that would be needed when the separate brigades become a part of such division headquarters. Additional air

SUBJECT: 1990 VISTA Study of the Future of the Army and Air National Guard

defense and light anti-tank battalions would also be required for these newly constituted divisions.

5. As the economy returns to a higher point of activity, we can anticipate increased competition for personnel, both technical and non-technical, which should cause a movement of missions toward the Army National Guard. The demonstrated manpower economies of the National Guard in not removing its personnel completely from the civilian work force, in the face of a tight manpower situation, is quite appealing as well as cost effective.

6. The competition for the decreasing pool of young male high school and college graduates will have a major impact on all services. During the time frame covered by the VISTA 1999 Study, there was firm evidence that personnel considerations will continue to hamper the Active Forces, and if not properly resourced it will also hamper the National Guard but to a lesser extent. With the decreasing manpower pool of those turning age 18 (estimated to be 22% less by 1992 than in 1979) these problems will worsen. It was estimated by a former Secretary of Defense that in order to maintain the present size Active and Reserve Forces, every other eligible high school male graduate would have to voluntarily join the Active Component or one of the Reserve Forces by the late 1980's. This is highly unlikely regardless of the degree of short term success of incentive programs.

SUBJECT: 1990 VISTA Study of the Future of the Army and Air National Guard

While the hemmorage of middle level managers, technicians, and specialists in the Active Army may be somewhat staunched by recent pay increases and improvements in the quality of life, great difficulty will exist in obtaining the additional number of these highly trained persons to support and maintain the new complex weapons systems. The shortage of these technologists in uniform will therefore increase, and will not be materially solved by a draft of the younger, less experienced personnel. In fact, the dramatically increased requirement for high caliber technical personnel to test, maintain, and repair the sophisticated weapons systems will, no doubt, be a problem that will exceed that of obtaining younger inexperienced personnel from the lower ranks and combat arms. It is uncertain that money alone can procure the service of uniformed technologists in the current self-centered society that will continue to exist through the 80's and into the 90's. Reliance upon contract or factory representatives and specialists will be a dangerous and unsatisfactory substitute since there is no assurance that these people will accompany the forces into combat when needed.

Many in the civilian sector will find the quality of life while working as a civilian and serving as a member of the National Guard to be a preferable way of life. Consequently, the Army National Guard can be a viable institution to obtain and retain the high quality manpower that will be needed for testing, maintaining, and repairing highly sophisticated systems. The greater stability, experience level, and potentially greater numbers of high quality personnel available to the National Guard can make it a good bet to provide more technical service support in the maintenance field. This could be accomplished during a peace time on-going basis through technician or full-time manning personnel, with a surge capacity through part-time Guardsmen for war time needs. Again, the Air National Guard and Army Guard maintenance units have clearly demonstrated the capability the National Guard to maintain and support complex weapons systems in a superior manner.

The Army National Guard, because only a small proportion of its members would be on full-time duty, because of its use of civilian housing, hospitals, and all other normal services that are provided by the civilian community, and because training sites need accommodate only a portion of the force at a time as they are rotated through annual training periods, the Army National Guard is also very cost effective. However, to increase the structure and the size of the force to 450,000 would require some additional Armory and training site construction, as well as the provision of more ranges and training areas, together with suitable cost effective simulators. The addition of incentives and resources for new units, together with similar support for existing Guard units, would permit a major expansion of the force, as well as improving the state of training, mobilization capability, and combat punch of existing units.

In short, the Army National Guard has the capability to add additional important elements to the Total Force for our national security.

Thank you for inviting me here today.

SUBMITTED QUESTIONS

Senator **Stevens** The committee has a number of additional questions which we will ask you to answer for the record.

[The following questions were not asked at the hearing, but were submitted to the Department for response subsequent to the hearing:]

ADDITIONAL COMMITTEE QUESTIONS

TOTAL ALLIED DEFENSE SPENDING

QUESTION: Mr. Perle, it emerged during our hearings yesterday that the numbers game is very difficult to play. We have been unable to get an estimate from the Pentagon on total allied defense spending, so we have been relying on the International Institute of Strategic Studies (IISS) for our numbers. However, you indicate that in 1981 our European allies and Canada spent nearly $128 billion on Defense. This appears to be substantially larger than the $107 - $110 billion shown by the IISS last fall. Since this appears to be the first time that anyone has seen a figure of this magnitude, could you please provide for the staff the basis on which it was calculated.

ANSWER: The figure of $128 billion for allied defense spending is drawn from national reports to NATO on defense expenditures. Country figures are computed using NATO definitions of defense expenditures, current prices and 1980 exchange rates. The totals by country in millions of dollars are:

Belgium	-	$4,242	Luxembourg	-	59
Canada	-	5,478	Netherlands	-	5,673
Denmark	-	1,743	Norway	-	1,888
France	-	30,278	Portugal	-	1,034
Germany	-	28,772	Turkey	-	4,406
Greece	-	2,955	United Kingdom	-	29,661
Italy	-	11,346	Total	-	127,537

Allied Contribution of Forces in Germany and Central Region

QUESTION: It is frequently cited by DOD spokesmen and others that our NATO allies are contributing 90 percent of NATO peacetime ground forces, 75 percent of the air forces and 80 percent of the naval forces in Europe. We believe that these figures might be somewhat misleading. Could you please give us an idea of the ratios of U.S. troops to European forces in Germany and in the Central Region as a whole?

ANSWER: The requested information is depicted below. (We have couched our response in same form as the preface to your question, i.e., allied forces as a percent of the U.S. and non-U.S. total.)

- Non-U.S. forces in Germany as a percentage of all NATO nation forces (including U.S.) in Germany:

Ground Manpower	69%
Combat Aircraft	71%

- Non-U.S. forces in Central Region as a percentage of all NATO nation forces (including U.S.) in Central Region:

Ground Manpower	80%
Combat Aircraft	76%

Naval forces cannot be meaningfully portrayed in terms of those "in Germany" or "in the Central Region" and, thus, are not addressed in the above display.

For this response "Central Region" encompasses the Benelux nations, Germany, France, the UK and Denmark.

ALLIED REINFORCEMENTS

QUESTION: You say that our force structure of 350,000 troops in Europe is sized so that we and the allies can respond to an attack with little warning. You then seem to imply that we could not draw down our troops because it would affect our capability to redeploy necessary forces in an emergency. You then note that US forces are the most important source of NATO reinforcements. Why can't the allies be expected to provide reinforcements by mobilizing some of their 3.5 million reservists?

ANSWER: The allies do provide reinforcements by mobilizing their reserves. In periods of increased tension, the NATO Alert System responds by initiating states of increasing readiness consistent with intelligence indications and warnings and the threat posed by Warsaw Pact force deployments. Each of the NATO nations is committed to reserve mobilization as the alert system becomes increasingly activated. In general, the reserve forces of each nation are assigned to support their own national active duty forces. However, US reinforcements not only provide additional coverage for the US area of responsibility in the Central Region, they also provide SACEUR with a flexible strategic reserve that can be used wherever it is most needed. The combined allied and US reinforcements provide the total NATO force needed for adequate deterrence and defense. Without US reinforcements, NATO's deterrent posture would be degraded and US policy interests in preventing aggression in Europe would be jeopardized.

Allied Burdensharing

QUESTION: The Report on Allied Commitments to Defense Spending says that critical deficiencies and shortfalls exist in most areas of NATO's Long-Term Defense Program, and that there is less than satisfactory progress in at least 60 percent of the measures in the LTDP areas. How much of this can be attributed to allied footdragging?

ANSWER: The statement to which the above question refers was taken from a paragraph discussing renewed allied efforts to implement the NATO force goals, Long-Term Defense Program and Afghanistan Phase 2 measures and should be considered in that context. The sum of these NATO requirements call for more resources than would be available if all NATO allies would achieve real increases in defense spending of 3% each year. For example, the force goals are set at a level which exceeds national plans even when these include a 3% real annual increase. Force goals by design ask for more than countries plan on doing and are an intentional challenge to further national efforts.

When measured against requirements for a full conventional defense capability, there are indeed several areas of critical deficiencies and the NATO Force Goals, LTDP measures and other defense programs draw attention to these as areas for greater effort. Failure of the allies to meet these challenges should not be characterized as footdragging, particularly in light of the many demands on the resources available in the austere economic situation of today. Although the NATO deterrent has been effective for more than three decades, we all should do more in providing an improved margin of security, especially in the face of the increasing Soviet threat.

QUESTION: We have heard that Britain's commitment to the Trident II program may put such a burden on its defense budget that it will have to withdraw some troops from the Army of the Rhine.

Is this likely to happen?

ANSWER: We have no indications that this, or any other defense cuts, are being planned by the United Kingdom as a result of the purchase of Trident II. In fact the recently completed U.K. defense review indicated the British will maintain their posture in Europe.

Central Region Defense and Burdensharing

QUESTION: Among the allies who have shown the least interest committing additional resources to defense are those with heavy responsibility for defending the northern sector of the Central Region.

Will some of our newly-introduced troops be used to fill in the gaps in this area? What does this say about burdensharing?

ANSWER: The responsibility for defending the northern sector of NATO's Central Region rests with the Northern Army Group (NORTHAG) and its supporting air units. NORTHAG land forces are provided by Germany, Belgium, The Netherlands, the United Kingdom and the United States. The US element is the product of our efforts over the past decade to broaden the geographic spread of US forces in Europe and to increase the defensive capabilities of NATO forces in the vital NORTHAG area.

The allies involved in NORTHAG's defenses have been solid contributors to NATO both qualitatively and quantitatively. All have modernized their forces in recent years and have increased their defense spending in aggregate by more than 2% annually over the past decade. The 1982 Defense report to the Congress on Allied Contributions to the Common Defense weighed a number of measures of contribution and concluded that the [deleted] manpower, combat force indicators and Berlin support costs) would appear to enhance the overall performance of the latter three countries, we are continuing to encourage all the allies to do more so that NATO's deterrent and defense forces are strong enough to offset the steadily increasing threat they face.

German Budget Constraints

QUESTION: Last year the Germans postponed or cancelled a number of programs because of budgetary constraints. How has this affected the overall state of NATO's defenses?

ANSWER: While Germany achieved a real growth in defense spending of 3.4% in 1981, the deletion of Roland air defense systems from their air force and navy programs and the two-year delay of the F122 frigates raised important questions for NATO's out-year capabilities. The NATO staff is currently examining the impact of these cuts.

TROOP STRENGTHS IN EUROPE

QUESTION: What are the additional costs of adding the 20,000 troops to our forces in Europe during fiscal years 1982 and 1983?

ANSWER: Let me answer this question in two parts. First, what is the number of our additional forces in Europe between FY 1981-1983? And second, what does it cost to send this additional number to Europe?

(1) Unfortunately, there has been some confusion surrounding the number of additional US forces we plan to send to Europe in the FY 1981-1983 period. Three numbers have been discussed that require clarification:

20,500	The 1983 Defense Manpower Requirements Report showed that we planned to have 357.9 thousand US troops in Europe at the end of FY 1983, a net increase of 20,500 over the number of US troops that were actually in Europe at the end of FY 1981. We have determined that the FY 1983 projection of authorized US military manpower in Europe included an accounting error in the Army column, and that the corrected figure for FY 1983 planned authorization in Europe is lower by 7.3 thousand, at 350.6 thousand. Therefore, the "20,500 increase" is in error.
13,200	Correcting the FY 1983 figure as noted yields a growth from the actual FY 1981 number to the revised FY 1983 projected authorization of 13.2 thousand. The bulk of this increase (11.1 thousand) represents spaces that were authorized for Europe in FY 1981 but which were not filled as planned (5.5 thousand) or due to ship deployments were not counted in theater on the last day of the fiscal year (5.6 thousand).
2,100	Netting from the FY 1981-1983 growth of 13.2 thousand the increase in European spaces that had previously been authorized for FY 1981 (11.1 thousand) yields the number of additional US spaces in Europe for which we are requesting authorizations in FY 1983 over 1981. This figure is 2.1 thousand.

Therefore, to cost the increase in European troop strengths for the next part of this question, the 20,500 figure is discarded as an inappropriate point of reference. Rather, the 13.2 thousand actual-to-authorized growth and, alternatively, the 2.1 thousand authorized-to-authorized growth are costed as follows.

(2) The costing of additional troops in Europe is very complex, given that we would be paying to have those troops stationed somewhere in any event, and given that we have a substantial defense commitment to NATO. The costs given here reflect only the initial, one-time cost associated with Permanent Change of Station moves (PCS costs). Note that these figures are overstated, perhaps by as much as 40 to 50 percent, in that they fail to account for the PCS costs that would be incurred even if these troops were not deployed to Europe.

Point of Reference:	FY 1981-1983 Strength Growth	PCS Costs
Authorized-Authorized	2,100	$12.8M
Actual-Authorized	13,200 (7500 ashore)	$45.8M

To deal at greater length with the cost and cost avoidance associated with geographical troop deployments is technically very difficult and would be highly misleading for two reasons: first, the data do not now exist which would accurately account for every conceivable cost associated with specific overseas deployments; and second, such data in any event cannot measure the cost of a particular force deployment in isolation, but rather would necessarily reflect the myriad decisions made by this and previous administrations that now shape our entire defense strategy and posture of our forces worldwide. However, recognizing the need of Congress to know the budget implications of our defense policies, the Department is now developing more comprehensive cost estimates associated with particular deployments, or changes in these deployments. These will be reported to the Congress as soon as they are completed.

QUESTION: We don't recall any discussion of this increase in troop strength during last year's budget hearings. How was it justified in the FY 1982 budget?

ANSWER: The Defense Manpower Requirements Report is submitted annually to the Congress in support of the President's Budget. Since FY 1980 the report has included actual and programmed active duty end strengths by military service and geographical location for the past, current, and budget years. Our review of the record indicates that indeed there was no discussion during last year's budget hearings of our plans for European troop strengths. (Some discussion took place before the Senate Armed Services Committee of our troop levels in Europe, with the implication that they should perhaps be increased.) To demonstrate that its insufficient coverage in last year's budget hearings was not part of any deliberate deception of the Congress, I would like to make two observations. First, the data were provided last year, as they have been for several years now, in the Defense Manpower Requirements Report, and thus the planned troop deployments to Europe were available to Congress. Second, the increase in authorized troop strengths in Europe between what was projected for the then-current year (FY 1981) and what was requested for the then-budget year (FY 1982) was a very small number, less than 5,000. (In point of fact, the Army's erroneous overstatement of authorization in FY 1982 meant that authorizations from FY 1981-1982 were essentially constant.) In sum, there was nothing hidden, nor anything to hide from the Congress.

QUESTION: What funding is budgeted for it in FY 1983?

ANSWER: The FY 1983 budget request to Congress is not broken out by the geographical location of troops, nor is it presented to or reviewed by the Defense Department and the Office of Management and Budget based on troop stationing plans. We are therefore unable to answer this question beyond noting the PCS costs associated with troop deployments. For the 2100 increase in authorizations from FY 1981-1983, the PCS cost is $13 million; for the 13,200 increase from the FY 1981 actual figure to the FY 1983 authorization request (only 7500 of which represents shore-based deployments) the PCS cost is $46 million. Note that these figures are overstated, perhaps by as much as 40 to 50 percent, in that they fail to account for the PCS costs that would be incurred even if these troops were not deployed to Europe. Recognizing the need of Congress to know the budget implications of our defense policies, the Department is now developing more comprehensive cost estimates associated with particular deployments, or changes in these deployments. These will be reported to Congress as soon as they are completed.

QUESTION: How many dependents will accompany these forces, and what will be the additional costs?

ANSWER: Reference is made to preceding questions, the answers to which provided the appropriate measures of US troop strength in

Europe between FY 1981-1983. 2100 is the increase from the authorized FY 1981 figure to the corrected FY 1983 planned authorization. Using the standard planning factor for command-sponsored dependents per member stationed overseas, this increase would imply roughly 2200 additional command-sponsored dependents located in Europe by the end of FY 1983. The incremental cost associated with this increase in command-sponsored dependents is estimated to be $1.9 million. 13,200 is the increase in US troops in Europe from the actual FY 1981 figure to the correct FY 1983 planned authorization. Netting from this total all troops that were either already deployed afloat but stationed out of the theater on the last day of the fiscal year (5600) and those authorizations projected to be afloat in FY 1983 (100) yields the number of additional US troops stationed in Europe who may be accompanied. This figure is 7500. The estimate of command-sponsored dependents associated with this increase is around 8000. The incremental cost associated with this increase in command-sponsored dependents is estimated to be $7 million.

POMCUS

QUESTION: A 1980 CBO study on the cost of prepositioning additional Army units in Europe suggested as alternatives to POMCUS that European allies could strengthen both their peacetime and post-mobilization forces and redress their firepower.

In view of Congress' refusal to fund POMCUS, have any initiatives been taken along these lines?

ANSWER: DoD agrees with the need for the European allies to strengthen both their peacetime and post-mobilization forces. We work with our NATO allies on a continuing basis to bring about such improvements. The NATO Long-Term Defense Program, the Afghanistan Phase II measures and our work with the bi-annual NATO Force Goals are examples. A great deal of improvement has resulted from these initiatives, but more needs to be done. However, DoD believes that these European force improvements are needed in addition to POMCUS, not in place of it. The prepositioning of equipment in Europe for three additional divisions under the LTDP is intended to bolster NATO deterrence and war fighting capability by making it possible to introduce US reinforcements into the area very early in a crisis in about the same time frame as allied reserve forces are fielded. Both are needed to make it clear to the Soviets that NATO has the capability to respond rapidly and effectively to an attack in the Central Region. Improving NATO deterrence in this way through a combined allied effort serves vital US and Alliance policy interests in dissuading the Soviets from aggression in Europe.

US/German HNS Agreement

QUESTION: You mentioned we have new agreements with the UK and BENELUX countries for increased wartime host nation support. What are the costs to the U. S. of these agreements?

ANSWER: There are no peacetime costs to the U. S. This is because the support in BENELUX and the UK in wartime will come from the civilian sector.

QUESTION: The wartime host nation support agreement with Germany, signed last week, provides for 93,000 German reservists in wartime, and necessary training, command and control in peacetime, to provide an effective force. What are the total costs of this initiative?

ANSWER: The total costs of this initative are estimated to be $570 million over the next five years to be shared equitably by the United States and the Federal Republic of Germany.

QUESTION: Will the U.S. contribution to this program pay for equipment and O&M? If this is so, why should the U.S. pay for German reserve troops when they will be used to strengthen the defenses of that nation?

ANSWER: Under the terms of the agreement, the Germans pay all of the personnel costs for the German reservists, plus part of the costs of the equipment and operations. The United States pays the civilian salaries and part of the equipment and operating costs. We view this agreement as a tremendous breakthrough of enormous advantage to the United States. Since its founding, NATO has rigidly adhered to the principle that wartime logistics support is each nation's individual responsibility. With this recent agreement, the Germans are not only breaking with that principle, but have agreed to pay half of the peacetime costs to implement the agreement. This HNS program will guarantee us critically-needed wartime logistics support capability for our combat forces at a very small fraction of the cost we would incur in providing that support with either U.S. active or Reserve units.

QUESTION: You don't mention it in your statement, but a recent news story indicated that the host nation agreement calls for the U.S. to more than double its 265,000 troops in Germany in the event of an emergency. Is this something new? What would be the effect of this agreement if Congress continues to deny funding for additional POMCUS sets?

ANSWER: Plans for the U.S. to more than double peacetime strength in Europe in the event of an emergency are not new. NATO heads of state and government agreed to a Long-Term Defense Program (LTDP) at the May 1978 Washington Summit. They agreed to "the prepositioning of the heavy equipment for three additional United States divisions in the Central Region . . . ." These three divisions, when added to the three divisions whose equipment has been prepositioned in Europe for many years, plus the four divisions forward-stationed in Europe, will provide ten divisions within ten days after mobilization, a force which General Rogers, SACEUR/CINCEUR, considers the minimum essential D-Day force.

If Congress continues to deny funding for the additional POMCUS sets, this will send an untimely signal to both our allies and potential adversaries. Within the Alliance, there is increasing recognition of need for strong conventional forces to serve as a credible deterrent, or, if necessary, conduct a successful conventional defense if there are to be meaningful East-West disarmament initiatives.

The agreement links the support from the Germans to the intent of the United States to provide ten divisions at D-Day. In the near-term, POMCUS is the only practical, cost-effective way that this force can be provided. Without the additional POMCUS sets, the Germans could consider that the United States has not lived up to its part of the agreement. Equally significant, however, is the impact on our other allies, particularly the Dutch and Belgians, who have already provided the land, at great expense, for the sets.

MASTER RESTATIONING PLAN

QUESTION: What is the total estimated cost of the Master Restationing Plan.

ANSWER: The cost estimate for new construction for MRP is $1.2 Billion which does not include family housing.

QUESTION: We understand a West German study concluded that it would not be worth the cost to move German troops closer to the border. If the Germans don't feel it's worthwhile to move their own troops forward, why should we?

ANSWER: The Germans did make a study of moving their forces forward, closer to their General Defensive Plan positions, because they do recognize the significant tactical advantages of this restationing. However, most German installations are modern; they have all been designed and maintained in accordance with consistent long term programs. For the Bundeswehr then, restationing would mean abandoning one modern, well maintained installation in order to build and move into a similar facility closer to the border. They concluded that the tactical advantage would not justify the costs involved.

USAREUR, on the other hand, has not been able to stick to a long-term plan for facility upgrade and repair. It occupies older facilities and adequate funds for repairs, especially during the Vietnam era, were not provided. The Army simply can no longer defer the requirement for some new facilities for force modernization and improved living and working conditions. For us, the most logical and cost-effective method to achieve our multiple objectives is to build at the MRP sites as we have proposed.

QUESTION: Yesterday, Deputy Secretary Carlucci commented that a major justification for the Master Restationing Plan is the deplorable condition of existing facilities for some of these troops. Have we made any commitments to turn over to the Germans the outmoded facilities we are leaving?

ANSWER: We have told the Germans that completion of the full three brigade MRP program will free some unspecified facilities for turnback. One negotiating option is to consider German requests for the installations or real estate they desire most in return for their funding participation in the total MRP program.

QUESTION: Are you telling us it's cheaper to deploy troops to new facilities than it is to repair and maintain existing facilities?

ANSWER: In some cases it is actually cheaper to build new facilities rather than attempt to upgrade and expand an existing installation which lacks space for expansion. Take the typical case of an old installation occupied by US troops at the end of WWII and now squeezed in by urban areas which have grown up on all sides. Existing utilities have probably already been expanded to their limit and even a marginal expansion of the organization may require a complete replacement of plumbing, electrical and sewage systems. Some urban installations require expensive environmental protective systems, such as barrier walls to protect surrounding communities from noise pollution. The fact is, that only at the MRP sites do we have large areas of appropriate real estate available under US control. Modernizing USAREUR by utilizing existing facilities exclusively would be unsatisfactory and also expensive.

West German Reserve Support

QUESTION: Has any thought been given to tying the Host Nation Support Agreement to a German commitment to pay for the Master Restationing Plan?

ANSWER: There is a critical factor of timing involved in such a proposal. The Wartime Host Nation Support Agreement has already been signed while we are just now beginning discussions on the Master Restationing Plan (MRP). We would submit that it would serve no useful purpose for us to delay one program -- HNS -- which we need and have requested, while we negotiate another -- MRP -- which we also need and have requested. We are on the receiving end of both and see no tactical advantage to a linkage. In fact, failure to fund and follow through on the HNS program may well foreclose on any possibility of continued "good faith" negotiations on MRP.

MASTER RESTATIONING PLAN

QUESTION: How much has the US already spent on MRP? How many military personnel have already been moved?

ANSWER: We have not yet spent any funds on MRP; however, the process is underway to start the two battalion projects at Vilseck which will utilize the $14.5 million in approved FY82 funds. No personnel have been moved as part of MRP and the first restationing to Vilseck is dependent upon both the FY82 funds and the FY83 request of $26.5 million to complete facilities for the two battalions.

COLLOCATED BASES

QUESTION: To provide for fast wartime reinforcement, U.S. aircraft are scheduled to go to 73 active allied airfields designated as collocated operating bases. These airfields are to be upgraded with NATO infrastructure funding and U.S. military construction funds.

This year, the Air Force has requested $28.6 million to prefinance minimum facilities, but Congress has been reluctant to fund this program.

Since these bases are primarily for the defense of Europe, why shouldn't the Allies fund them? What are you doing to recoup more of these costs?

ANSWER: The COB program is in our national interest and is the highest priority Air Force requirement in Europe. The Air Force continues to emphasize the priority of this program in the NATO arena and we believe that there will be substantial recoupment beginning in slice 36. NATO has funded $32 million for COBs in slice 33 (FY 83) of which $21.8 million is for minimum essential facilities and $5.8 million is for recoupment. Our willingness to prefinance this year will, we believe, stimulate NATO to continue to fund COB projects in slices 34 and 35 even though funds are extremely limited in those slices.

NATO'S AIR BASE DEFENSE

QUESTION: In an interview last February, Major General Richard C. Bowman (USAF, Ret.) identified air defense as one of the programs not doing well in NATO's Long-Term Defense Program and added that the "lack of airfield defense is the biggest defense scandal of the last decade."

Do you consider this a valid criticism? Is any allied foot-dragging involved?

ANSWER: NATO's Defense Ministers approved a balanced NATO air defense plan covering the next 15 years in December 1979. Major sub-areas of that plan are improvement of force posture, improving surface-to-air missiles and air defense at installations (to include air bases), land/maritime air defense interface, improving air command and control systems and the air defense of Portugal.

(Deleted).

Efforts are under way by the US and some of its allies to improve air defense coverage. This is being done through such actions as the (deleted). However, air base defense remains a key area for improvement within NATO.

Costs of Withdrawing Forces From Europe

QUESTION: At the request of this Subcommittee, the Congressional Budget Office reviewed the costs of withdrawing troops from NATO. CBO's analysis suggests that savings would result if troops were withdrawn and the Army's end-strength were reduced accordingly. For example, withdrawing a division (approximately 20,000 troops), and reducing the Army's end-strength would provide net one-time savings of $1.7 billion and produce annual recurring savings of approximately $526 million. Do you agree with at least the order of magnitude of those costs?

ANSWER: We are developing a detailed assessment of the costs of withdrawing U.S. forces from Europe which we believe will be responsive to the question you have raised. We will forward this assessment to the Committee as soon as it is available, and expect to have it ready in approximately one month.

AFFECT OF US WITHDRAWALS

QUESTION: How would a withdrawal affect the US commitment to NATO? And what effect would such a move have on the US ability to respond to contingencies outside of the NATO arena?

ANSWER: A withdrawal of this magnitude would have a severe impact on the ability of the United States to reinforce Europe quickly in a crisis because the US is already short of strategic lift required to move heavy equipment to Europe.

Since the divisions currently in place in Europe are not planned for use outside the NATO area, there would be no direct impact on US ability to respond to other contingencies, unless some of these divisions were to disappear from the force structure. If these divisions were removed from the force structure, the ability of the US to respond to out-of-area contingencies would be adversely affected because we are already force poor.

The greatest impact of a withdrawal of this magnitude would be the perception by the Soviets and our allies of a weakening resolve to fund the forces required to maintain the deterrent and to defend Europe should deterrence fail.

TROOP WITHDRAWAL

QUESTION: What offsetting actions might the European allies initiate in the event of a US troop withdrawal? Why couldn't they fill the gap?

ANSWER: Compensation could take such forms as increase in troop reserve mobilization capability and repositioning of existing standing forces. European willingness to offset a withdrawal of US troops would depend upon the size of the withdrawal and the conditions under which the decision to withdraw took place. If the size of the withdrawal went as high as one division, Europe might compensate in part, but Europe could also arrive at the judgment that if political conditions were such as to permit US withdrawal, these same political conditions would not be seen in their countries as justifying increased European defense efforts. If a withdrawal of some part of US forces from Europe were arrived at as part of a larger plan of shifting defense missions, possibly in recognition of a wider threat, the overall plan would undoubtedly provide for an adequate defense of Europe.

Costs of Withdrawing Forces From Europe

QUESTION: The CBO analysis found that withdrawing 5,000 U.S. Army troops, but leaving them in the Army and based stateside, would save $36 million a year. The analysis suggested that there might be little or no additional costs of basing such a small number of troops in the U.S. Do you agree with the main points of these findings?

ANSWER: We are developing a detailed assessment of the costs of withdrawing U.S. forces from Europe which we believe will be responsive to the question you have raised. We will forward this assessment to the Committee as soon as it is available, and expect to have it ready in approximately one month.

TROOP WITHDRAWAL ISSUE

QUESTION: It seems likely that such a small withdrawal--5,000 of the more than 200,000 US Army troops in Europe--should have minimal effects on our ability to support NATO but might serve as a reminder to our allies of the concern over our commitment. Do you agree?

ANSWER: Excepting only North America itself, Western Europe is the area most vital to the security of the United States. To withdraw forces from Europe unilaterally--even in small numbers--could well give European governments and publics cause to question the commitment of the United States to the defense of Europe. A reduction of 5,000 soldiers could have political ramifications within the Alliance far outweighing operational considerations. Concomitantly, European allies could interpret a reduction in US conventional capability as an increased reliance on our nuclear capability, and see a direct lowering of the nuclear threshold because of the degradation of prospects for a successful conventional defense. US unilateral reductions would more than likely undermine the joint progress made by the US and its allies in improving the overall NATO defensive posture.

QUESTION: Is it true that the Army proposed withdrawing a brigade of troops during the internal debates over this years budget?

ANSWER: Budget limitations imposed on the Army during August-September 1981 required reductions in FY 82 and FY 83 outlays.

To protect essential readiness and modernization programs, the Army leadership elected to reduce force structure; included in that reduction was inactivation of the 4-4th at Wiesbaden, GE, in late FY 82 to achieve FY 82 and FY 83 savings. The FY 82 budget, as amended in September 1981, deleted funds for the brigade in 4th quarter FY 82. In January 1982, as the FY 83 budget formulation process was finalized, the funds and manpower associated with the brigade were restored (as a consequence of the Polish crisis) and the FY 83 budget reflects that restoration. Fourth quarter/FY 82 funds were requested for the unit in the FY 82 supplemental.

TROOP STRENGTHS IN EUROPE

QUESTION: As an alternative to troop withdrawals, the Committee might recommend freezing the number of troops at their current level. Please prepare for the record an analysis of cost avoidance from the FY 1982 program and the FY 1983 budget.

ANSWER: Freezing the number of US troops in Europe at its current level (337.4 thousand at the end of FY 1981 plus afloat an additional 5.6 thousand deployed to the area but not counted in the theater on the last day of the fiscal year) would have the effect of reducing the planned FY 1983 authorization of strength in Europe by 7.6 thousand. Of this number, 7.5 thousand would have been stationed ashore. If these troops were not relocated from their current duty assignments, we would avoid paying a maximum of $46 million in Permanent Change of Station (PCS) outlays in FY 1982-1983. (This figure is an absolute maximum in that it fails to account for the PCS costs that would be incurred even if these troops were not deployed to Europe.) The Department is now developing more comprehensive cost estimates associated with particular deployments, or changes in these deployments. These will be reported to Congress as soon as they are completed.

Costs of Withdrawing Forces From Europe

QUESTION: The CBO analysis focused on withdrawing U.S. Army troops. How would costs differ if, say, Air Force personnel were withdrawn and deployed in the continental U.S.?

ANSWER: We are developing a detailed assessment of the costs of withdrawing U.S. forces from Europe which we believe will be responsive to the question you have raised. We will forward this assessment to the Committee as soon as it is available, and expect to have it ready in approximately one month.

REDUCTION IN EUROPE AFFECT ON NATO

QUESTION: How would an Air Force reduction in Europe affect NATO?

ANSWER: The affect on NATO would depend on how much of what Air Force capability was withdrawn from Europe and, to some extent, what was done with the removed units. Assuming the units were retained in the active force structure, based in CONUS, and made available for wartime augmentation of Europe, the principle operational impact would be degraded availability for NATO employment. In a minimum warning attack, available airlift may not be able to deploy CONUS-based units in time to affect the outcome. Also, withdrawn units would soon lose their familiarity with the European physical environment and multinational operations. In terms of warfighting, and hence deterrence, there is no substitute for an in-place force. If the withdrawn units were disbanded or not made available for European deployment, obviously the total forces available to NATO commanders would shrink at a time when the threat is growing in both size and sophistication. Clearly, this could force NATO toward an early employment of European-based nuclear weapons and raise the specter of even greater escalation. A substantial reduction in Air Force combat strength in Europe could have grave consequences for Alliance warfighting, deterrence, cohesion, and resolve.

SHIFT OF AF PERSONNEL TO ANG

QUESTION: Would it be reasonable to withdraw some Air Force personnel and shift them to the Air National Guard, which has an enviable record of pilot skill and maintenance acumen? How much might such a move affect cost?

ANSWER: The Air Force programs its requirements using a Total Force policy. Much of the Air Force's capability already rests in the Air Reserve Forces. Following is a list of the Air Reserve Force's contribution to the Air Force Total Force in FY 1983:

Tactical Fighter/Attack	34%
Tactical Reconnaissance	54%
Fighter Interceptors	66%
Tactical Air Support	32%
Special Operations-Combat	50%
Special Operations-Other	26%
Air Refueling	21%
Air Rescue & Recovery	36%
Weather	35%
Tactical Airlift	59%
Strategic Airlift	49%
Aeromedical Airlift	30%
Tanker/Cargo	50%
Electronic Combat	25%

The Guard and Reserve form the first and primary source of augmentation in an emergency requiring a fast and sizable expansion of the active force. Much of the Air Force increase displayed in the FY 1983 President's Budget is based upon validated peacetime workload requirements for which the active manpower provided will also satisfy wartime requirements. Therefore, increasing the Air National Guard might not be appropriate.

The Air Force has been a strong proponent of the Total Force policy and much of its capability already resides in the Air Reserve

Forces, as shown above. There are limits, however, to how much support we can reasonably expect to obtain from the Reserve Forces. Some skills are not easily recruited and retained within the Reserves. Moreover, significant training requirements may preclude using the Reserves as a viable source of manpower for some specialities.

All of the above represent variables which must be considered in determining our mix of active, Guard and Reserve Forces. The Air Force goal remains improved readiness at minimum cost by insuring the most effective balance between active and reserve components, as well as the proper balance between combat and combat sustaining forces. The Air Force carefully reviews its requirements and the optimum method of performing its functions.

We rely to a large extent, as shown above, on the Air Reserve Forces for performance of much of our mission. The workload to be performed by the increased personnel requested in our FY 1983 budget is best performed by active military manpower, since it represents daily, peacetime workload in support of active force missions, and provides the necessary military personnel to respond to immediate contingency and wartime requirements. Given the same mission, aircraft, and flying hours, and excluding BOS, there is very little difference in the cost between active and Reserve Forces.

NATIONAL GUARD CAPACITY TO EXPAND

Question: Isn't it true in both the Army and Air National Guard that there is a capability to expand with a minimum of new facility construction?

Answer: The Army and Air National Guard have an expansion capacity to bring units in the current structure to currently projected strength levels, without a substantial increase in facilities. Beyond that, if you are talking about increasing the number of units in the Guard structure, a relative increase in the number of facilities, e.g., hangars, armories, storage, maintenance, and training sites would be required.

Coproduction

QUESTION: It has been reported that DoD partially waived research and development costs in return for an increased Canadian purchase of F-18s under a coproduction agreement. More airplanes were ordered, but the U.S. Treasury lost about $70 million. Do we need to subsidize the process of our allies arming themselves?

ANSWER: In April 1980 the Canadian Government and the McDonnell Douglas Corporation signed a contract for the purchase of up to 137 CF-18 fighter aircraft. This purchase was made on a direct commercial basis rather than on a government-to-government basis through Foreign Military Sales (FMS). Such a direct commercial transaction is entirely proper, although somewhat unusual, since most foreign governments handle their aircraft systems purchases through the FMS program. It is not a coproduction agreement. The original Canadian budgetary resources permitted the acquisition of only 129 aircraft, yet our two governments were able to agree that the United States Government would reduce the nonrecurring cost recoupment charges on the CF-18 aircraft transaction by an amount not to exceed $70 million, and that the Canadian Government would provide an equal amount of funding additional to its defense budget, so that Canada could purchase a minimum of 137 CF-18 aircraft.

On 17 December 1980, the Chairman, Committee on Government Operations, was advised that there were two fundamental reasons for the mutual accommodation by Canada and the United States on the question of nonrecurring cost recoupment charges. First, it resulted in additional defense spending by Canada which directly benefited the United States since the additional aircraft Canada purchases will be assigned to NORAD. Second, the complete integration of U.S.-Canadian air defense arrangements for North America obligates both our countries to standardize intricate equipment at the tactical level, greatly limiting Canada's flexibility in the choice of equipment and, in practice, requiring Canada to incur expenses it might otherwise have chosen to forego.

QUESTION: What criteria should be applied to the question of waiving R&D costs for some allies but not for others?
ANSWER: The limitations established by statute provide waiver authority for FMS of major defense equipment (MDE) only to NATO, Japan, Australia, or New Zealand. DoD applies the same limitations, by policy, to FMS on non-MDE and to direct U.S. contractor - foreign government sales.

Waivers are considered only where it is demonstrated clearly that a particular sale would significantly advance U.S. interests in standardization. The burden of such demonstration rests with the purchasing foreign government or international organization. Waivers are considered only on a case-by-case basis, taking into account the unique circumstances of the particular transaction.

It generally is appropriate to grant full waivers solely on the basis of standardization to eligible countries, which receive financial assistance (as opposed to full cost loans) from the U.S. Such assistance includes material grant aid, credit at concessional rates of interest, or credit where forgiven repayment has been approved for the current fiscal year. Portugal and Turkey currently receive such assistance.

There is a general presumption against granting waivers for major sales to other eligible countries unless additional benefits can be demonstrated. Such benefits usually would be attributable to a unique military, foreign policy, or economic advantage of the sale.

NATO INFRASTRUCTURE FUND SHORTAGE

QUESTION: A recent GAO draft report notes US officials believe there is a crisis in the infrastructure program as a result of shortfall in funding, and that one of the causes has been German unwillingness to renegotiate the current cost ceiling upward. Please tell the committee how this has affected the US defense budget.

ANSWER: The real problem was not so much German unwillingness but inability to agree to a review of the ceiling earlier than 1983 as previously agreed, because of a real German budget shortfall and near-term cash flow problem. This shortfall has not yet significantly affected the US defense budget because US and NATO efforts are continuing to come to grips with this problem. We now have hopes that the shortfall will be dealt with by the end of 1982.

QUESTION: How much prefinancing has been requested for items that should be supported by the Infrastructure Program?

ANSWER: The DoD has requested $28.6 million in the FY1983 budget to provide Minimum Essential Facilities (MEF) for seven of the US Collocated Operating Bases (COBs) which are of slightly lower

NATO priority than the six COB's and involving $34.5 million, which are now included in NATO Infrastructure Slice 33, approved May 4, 1982.

QUESTION: What are you doing to break the (Infrastructure funding) deadlock?

ANSWER: In May 1979, when the allies agreed to a compromise 1 billion IAU ceiling (3.516 billion) for the five-year period 1980-84, they also agreed to review the ceiling in 1983. In view of the shortage that became clear earlier the US pressed for an earlier review. Most nations were inclined to agree but the German budget problem prevented its joining at the time. Meanwhile, we have been given hope that this shortfall problem may be addressed by the end of this year.

NATO AWACS PROCUREMENT

QUESTION: A 1980 GAO report identified a number of potential problems with the sale of AWACS to NATO allies. One issue was allied refusal to pay for cost overruns or inflation. To what extent have allied nations refused to pay their fair share of cost increases in jointly-funded defense projects, and what is their rationale as to why the United States should be solely responsible? Also, what is their rationale for not wanting to pay inflationary costs?

ANSWER: Since the General Accounting Office (GAO) published its 1980 report on the NATO Airborne Early Warning and Control (AEW&C) Program, several major events have occurred that would require modification of the assumptions underlying the GAO's identification of potential problems in that program. These include: Belgium's formal accession to the total program (including agreement to pay its full aircraft acquisition share and inflation adjustments); the Federal Republic of Germany's agreement to pay inflation on its annual contributions, calculated by the same method agreed by all other participants; and Italy's decision to pay its full share (including the inflation adjustments) on a schedule more favorable to the program than previously agreed. With potential problems over contributions and inflation payments largely precluded through these developments, we believe the NATO AEW&C acquisition program is achievable within anticipated program monies -- that is, the $1.826 billion (1977 US $) in total estimated program costs which Alliance Defense Ministers agreed to in the Multilateral Memorandum of Understanding of December 1978. Even if there were cost increases that would exceed anticipated funding, the United States would not be obligated unilaterally to increase its contributions to cover such cost growth. We do not anticipate any requirement to increase our cost share and would not request Congress to do so unless other governments proportionately did the same.

In short, estimated costs for the highly successful NATO AEW&C acquisition program are within anticipated total program funds.

NATO Procurement Exchange

QUESTION: To what extent has the United States been obligated to buy foreign made defense equipment for greater allied defense burdensharing? For example, the Federal Republic of Germany required the U.S. purchase of $100 million in German-manufactured defense equipment in exchange for the German contribution to the NATO AWACS procurement.

ANSWER: The United States is not obligated to buy foreign made defense equipment in exchange for greater allied defense burden-sharing per se. However, when a purchase is cost effective, and enhances the "two-way street" concept it then becomes another matter as illustrated by the FRG/NATO AWACS example cited below.

The European Administrative Use Vehicle (AUV) program was initiated with our Allies because of the merits of the program and because it helped fulfill the objectives of the Culver-Nunn amendment contained in the 1976 DoD Authorization Act. Non-tactical vehicles of the type being acquired are cost effective and are currently in use or are planned to come into use by the armed forces of the FRG and other NATO nations in that area. The U.S. Government is convinced that standardization of these vehicles between U.S. Armed Forces, FRG and other NATO armed forces in that area will: (1) assure the readiness, maintainability, and reliability of these types of vehicles for their assigned functions; and (2) make possible, during peacetime joint operations, wartime conditions, or other emergency, the interchange among NATO forces of parts and services to repair damaged or inoperable vehicles of these types.

From the start both parties realized that the procurement of the AUVs and the European telephone system (ETS) had to meet the DoD technical requirements and be cost effective. The Germans viewed the ETS and AUV procurements as compensation for German participation in the NATO AWACS program. The Bundestag Defense Committee, in fact, linked these procurements to the NATO AWACS program by formally noting that its agreement to AWACS was based on the assumption that the U.S. would procure AUVs and German telephone equipment and conclude a license agreement for the 120mm tank gun.

DoD recognized the German expectations on the "two-way street" which provided the political context in which the Bundestag approved and committed funding (560 million in 1977) for German accession to the NATO AWACS program.

QUESTIONS SUBMITTED BY SENATOR STENNIS

SOVIET PIPELINE

QUESTION: Mr. Perle, you speak of any unilateral withdrawal of US troops from Europe as a weakening of US commitments. Couldn't one perceive that support of the Soviet pipeline and the failure of European allies to contribute to the defense of the Persian Gulf would be viewed in the same light?

ANSWER: It would be difficult to conceive European support of the Soviet pipeline as a direct weakening of the European commitment to NATO defense, since it does not result in any reduction in the allied defense effort, although it will mark a major flow in balance of payments in favor of the USSR, once the line is operational. With regard to the defense of the Persian Gulf, some European allies have participated and are participating in appropriate military activity in the area. In addition, many of the NATO allies are working with us on the provision of enroute access and support for a Southwest Asia deployment and have already provided such assistance during US RDF exercises in Southwest Asia. Our European NATO allies are also in the process of committing wide-body passenger aircraft for US reinforcement of Europe to help offset use of US aircraft in a Southwest Asia deployment. Moreover, NATO is conducting a study of the impact on NATO of Southwest Asia security requirements. This study involves various possible measures that the allies could take with respect to NATO defenses that would compensate for US forces that might have to be deployed to Southwest Asia. All of these represent tangible allied efforts to contribute to defense of allied interests outside of the NATO area.

Costs of U.S. Forces in Europe

QUESTION: A number of defense officials have been quoted as saying that between 40 and 60 percent of the Defense budget goes for maintenance of our forces in Europe. Do you believe this is the order of magnitude we are involved with?

ANSWER: We are developing a detailed estimate of the costs requested, in a manner that permits identifying those costs uniquely associated with our force deployments. We will forward the requested information to the Committee as soon as it is available, and expect to have it ready in approximately one month.

NATO's Deterrent Posture

QUESTION: The quality of NATO's deterrent posture has weakened in recent years. Is it your opinion that the real growth increase projected by the United States will by itself, be sufficient for the required force improvement effort to provide NATO with a viable defense capability during the 1980's?

ANSWER: We cannot agree with the statement that NATO's deterrent posture has weakened in recent years at least in absolute terms. Our allies have continued to increase defense spending and modernizing and improving their defense posture. Unfortunately, however, what they have done has not kept up with the relentless growth in Soviet/Warsaw Pact Military Capability.

The real growth in the defense effort projected by the United States, while extremely important to help redress the NATO/Warsaw Pact Balance, is not sufficient by itself and must be accompanied by renewed efforts by our allies. Toward this end we are working with our allies to obtain increased capabilities from resources already devoted to the common defense but also to encourage them to increase their contribution to the common defense.

U.S./German HNS Agreement

QUESTION: When will the 93,000 German Army Reservists, to support U.S. troop reinforcements in the event of hostilities, be available? This commitment was recently agreed to in the Wartime Host Nation Support accord.

-- When this support plan is fully implemented, will we be able to reduce any of our support forces in Europe?

-- Will the United States bear any of the cost of supporting the German Reserve units?

ANSWER: The German Armed Forces plan to organize, in 1983, two security companies, nine security platoons, and five airbase support units with a wartime strength of approximately 4,000 personnel. Additional units will be organized over the next five years.

The support to be provided by the Germans will be available only during a crisis or wartime. Thus, there will be no reduction of support forces in Europe in peacetime as a result of this agreement. In wartime, the availability of the German reservists will significantly reduce the support force shortfalls that currently exist.

The United States and the Federal Republic of Germany share the costs associated with the German Reservists. The United States pays the salaries of civilian workers and part of the equipment and operating costs. The equipment which the U.S. will buy represents only a small fraction of the total equipment the German units require. Most of the equipment the German reservists would use in wartime would be mobilized from pre-identified, pre-planned civilian equipment and not procured in peacetime.

US Global Commitments

QUESTION: Where do we stand on our negotiations with the Germans for the so-called Master Restationing Plan? This plan would move a large number of US troops from their current bases to new locations closer to the East German and Czech borders.

ANSWER: An official German delegation met with a US delegation led by Mr. Perle, the Assistant Secretary of Defense for International Security Policy on March 17, 1982. At this meeting, the Army presented its construction requirements to relocate three brigades to US controlled land near their general defense positions. The Germans were also told that our goal was to complete the restationing by (d) and that construction should commence with German fund participation, in (d). Subsequent to the meeting, an agreement was signed by the heads of each delegation, establishing a working group known as the "joint committee of experts." This committee has been tasked to work out the problems anticipated to occur in the accomplishment of the Master Restationing Plan (MRP). Their first meeting was held in Bonn April 21, at which time the Germans presented a functional model, and identified problems associated with planning, implementation, and operations at the MRP sites. A second meeting is scheduled May 21, at which time solutions to the problems previously identified, will be negotiated. I consider that we are definitely making progress, but it will take time. There is a genuine interest on both sides to get on with solving the many problems inherent in the MRP.

Improved Social Conditions for US Forces in Germany

QUESTION: We were also having discussions with the Germans for improvements of housing and social conditions for US troops. Where do we stand on these negotiations?

ANSWER: Representatives of US Forces in Germany and the German federal government have had discussions on improvements of social conditions in the past. It was decided that these types of problems were best resolved at the German state and local level. Accordingly, improvement of social conditions for US Forces became a priority item for discussion between United States Liaison Officers and local officials. The program is ongoing and to date significant progress has been made, particularly in ameliorating discrimination against members of the US Forces.

MUTUAL AND BALANCED FORCE REDUCTIONS

QUESTION: General Smith, your statement mentions that the West Germans recently took the initiative to develop a Western position on the stalled Mutual and Balanced Force Reduction (MBFR) negotiations. Where do we stand on this? Is it your opinion that these negotiations could be reconvened with the potential of achieving balanced force reductions?

ANSWER: The West German initiative evolved into the West "stock taking" proposal tabled in Vienna on 8 April. This procedural initiative was designed to focus attention on areas of importance to either side where some progress has been achieved. The German initiative demonstrated a commitment to seeking ways to reopen channels for discussion with the East and add renewed momentum to the negotiations. The US, after a thorough review of its arms control policy, remains committed to achieving an MBFR agreement and is now engaged in intensive consultations with its allies to develop a new position consistent with the conclusions of the US review. I believe the resulting position will improve the potential for balanced force reductions. At the same time, we should not underestimate the difficulty of achieving any meaningful agreement in this area.

Efforts to Increase allied Defense Expenditures

QUESTION: There was a provision in the Fiscal 1981 Defense Authorization Act expressing a sense of Congress that our NATO allies should increase their contributions for the common defense to levels commensurate with their economic resources. Is it your opinion that our "arm twisting" methods have made any impact on our NATO allies relative to an increase in their defense spending.

ANSWER: We are working with our NATO allies to encourage them to make a larger contribution toward the common defense and it is useful for them to know that Congress is concerned and backs our efforts to obtain improved performance. On the other hand overt "arm twisting" and threats can be counter-productive. In the final analysis what our allies do depends on how they perceive the threat and what needs to be done to counter the threat. We are working with our allies bilaterally and through NATO, privately and publicly to get the situation across to our publics. The release of the NATO White Paper on the NATO/Warsaw Pact Force Comparisons is only one example of more recent multilateral public efforts.

NATO Defense Budgets

QUESTION: It would appear that economic recovery on both sides of the Atlantic is necessary before the current pressure on NATO defense budgets can be relieved. Is it your opinion that an economic upswing in the latter stages of this year, as predicted by the Administration, will precipitate some relief in Europe and assist in alleviating some of the tensions that are readily apparent today?

ANSWER: Economic recovery in Europe is not primarily linked to economic events in the United States, but is in part dependent on European conditions, although an expansion in U.S. economic activity may be accompanied by some economic recovery in Europe. When economic recovery occurs in Europe, we would hope that NATO countries would increase their defense efforts. Even if no recovery occurs, we would expect our NATO allies to continue to place a high priority on their security needs.

Projected Real Increases in Defense

QUESTION: NATO set a goal in 1978 to increase real defense spending by three percent. In 1981, the European members of NATO as a group increased spending by 2.6 percent and this had been the closest the group has come to the 1978 goal. Do you foresee some additional improvement this year, if the economy improves?

ANSWER: Since establishing the 3 percent goal in 1978 our non-US NATO allies as a group have shown increasing real increases until this year when severe economic situations in many NATO countries caused a modest down turn and we now project only a 2.1% real increase for 1982. This is not as bad as it could have been with declining economies and real cuts in Social Welfare budgets in many European countries.

With a revival of the economic situation we would expect allied performance to improve though experience has shown that improvements in real increases generally lag about a year behind economic recovery.

NATO Procurement Exchange

QUESTION: It is my understanding that the statistics relative to the trade balance of military equipment between European allies and the United States is largely in our favor. Would you comment on the trend of this trade balance over the past several years.

ANSWER: Between FY 76 and FY 80 the trade balance in military equipment between the US and major European allies was approximately 6:1 in favor of the US. Despite an increase in industrial capability, our allies continue to purchase expensive, high technology equipment from the US (e.g., the F-16), thereby contributing to the imbalance. However, reciprocity in arms procurement is a goal of the Administration in support of the cooperative "two-way street" concept.

Question: Former Secretary Harold Brown testified to the House Foreign Affairs Committee that "The Soviets have a clear lead in conventional forces over NATO (deleted). Do you agree with his assessment?

(This question was addressed, in part, by recent wargaming exercises.)

Answer: (Deleted.)

RELIABILITY OF WARSAW PACT COUNTRIES

QUESTION: Many authorities believe the key to a Soviet conventional victory in Europe is to win quickly. Otherwise, the stability of Warsaw Pact countries would have to be considered. Do you believe the Pact countries would hold firm in a prolonged conventional conflict?

ANSWER: The Warsaw Pact countries will probably hold firm in a conventional war so long as the Soviet Union appears capable of winning its military objectives or, at least, maintaining its military potency. The US must, therefore, base its military planning on the conservative assumption that the Warsaw Pact will hold together.

SOVIET CONVENTIONAL FORCE EXPENDITURE

QUESTION: There have been some estimates that the Soviet Union has outspent the United States by $10 to $30 billion per year for conventional forces in Europe for over 10 years. Do you agee with these estimates?

ANSWER: The Intelligence Community annually estimates the dollar cost of Soviet defense programs for comparison with the comparably defined US defense outlays to provide a measure of the magnitude of military activities over time. For the decade of the 1970s, the cumulative total dollar costs of Soviet defense programs exceeded the US defense outlays by approximately $500 billion. A breakout of these dollar data for US and USSR conventional forces in Europe, however, is not available at this time.

IISS ESTIMATE

QUESTION: If so, what about the studies by the International Institute of Strategic Studies in London which estimate that the Warsaw Pact allies collectively spent $20 to $30 billion per year while the NATO allies spend $100 billion per year?

ANSWER: The DIA estimates that the total dollar cost of non-Soviet Warsaw Pact defense programs currently amounts to about $30 billion in 1981 and non-US NATO military spending amounted to the equivalent of $100-$200 billion, which are similar to those of the International Institute of Strategic Studies (IISS). The non-US NATO figures, however, are not consistent with the definition of US and Warsaw Pact outlays. No full alliance cost comparison can be made until further work is done to make the non-US NATO defense costs definitionally consistent.

SOVIET EXPENDITURE EFFICIENCY

QUESTION: Even though manpower costs are much less expensive for Warsaw Pact countries than NATO, wouldn't you agree that the Pact gets more "bang for the buck?" Why is this?

ANSWER: Defense spending data are useful for comparing the relative costs of defense programs. Based on US estimates of Soviet military spending, the Soviets allocate approximately 50 percent of their defense budget to the procurement of hardware and between 10 and 15 percent of this budget to personnel costs. Using data from the US Five-Year Defense Program and the US budget, adjusted to be consistent with the Soviet programs, the US allocates about 25 percent of its defense budget to procurement of hardware and about the same percentage to personnel costs. These relationships do not change appreciably when non-US NATO and non-Soviet Warsaw Pact defense costs are included.

Defense spending comparisons are not appropriate, however, for measuring the relative effectiveness of NATO and Warsaw Pact forces. Assessments of capability must take into account a variety of factors: military doctrine and battle scenarios; the tactical proficiency, readiness, and morale of forces; the numbers and effectiveness of weapons; and logistic factors.

SUBCOMMITTEE RECESS

Senator **Stevens**. We may proceed on this matter in the near future. The subcommittee will stand in recess until Wednesday April 28 at 9 a.m. when we will receive testimony on space systems.

[Whereupon, at 11:30 a.m., Thursday, April 22, the subcommittee was recessed, to reconvene at 9 a.m., Wednesday, April 28.]

DEPARTMENT OF DEFENSE APPROPRIATIONS FOR FISCAL YEAR 1983

WEDNESDAY, APRIL 28, 1982

U.S. SENATE,
SUBCOMMITTEE OF THE COMMITTEE ON APPROPRIATIONS,
Washington, D.C.

The subcommittee met at 9 a.m., in room 1224, Everett McKinley Dirksen Senate Office Building, Hon. Ted Stevens (chairman) presiding.

Present: Senators Stevens, Schmitt, and Kasten.

DEPARTMENT OF DEFENSE

COMMAND, CONTROL AND COMMUNICATIONS [C3]

SPACE-BASED PROGRAMS

STATEMENTS OF:

DR. ROBERT S. COOPER, DIRECTOR, DEFENSE ADVANCED RESEARCH PROJECTS AGENCY

DONALD C. LATHAM, DEPUTY UNDER SECRETARY OF DEFENSE FOR COMMUNICATIONS, COMMAND, CONTROL, AND INTELLIGENCE

SPACE SYSTEMS

OPENING STATEMENT OF SENATOR STEVENS

Senator STEVENS. Good morning. The subcommittee on defense is meeting to hear testimony on appropriations requests of the Department of Defense for Command, Control and Communications [C3] systems and for space-based programs.

Strategic C3 and space-based programs are being considered jointly because they share the common elements of having orbital platforms, a reliance on an overlapping high technology base, and requirements for very large funding commitments. They are all big ticket items in this area.

We are told by the Department that it is necessary to spend over $18 billion during the next 5 years to upgrade our C3 capabilities. The request for fiscal year 1983 for strategic C3 is $2.8 billion, up from $2.5 billion this year.

We also note that funding requirements for space activities have been growing rapidly. The Department's 1983 request for space programs totals $8.5 billion, which represents real growth of 20 percent over 1982. R. & D. and procurement for the Department's

Space Shuttle involvment by itself constitutes over $600 million of the 1983 request.

Because of the high costs we must be sure we are not paying twice for the same capability. Current and projected communications satellite systems in particular appear to carry a redundancy of capability. We have FLEETSAT and LEASEAT for the Navy, a special Air Force strategic system [AFSATCOM], Defense Satellite Communications Systems [DCSC] II and III for all of DOD, and now MILSTAR.

The subcommittee will be interested in hearing how these systems relate to each other and why all of them, with their multiplicity of satellites, are necessary.

We are also interested in knowing how well our defense efforts dovetail with our civilian programs and why we need so many separate military systems in space to begin with.

We are proceeding in open hearing this morning. If it appears that an answer to a question necessarily involves classified information, we will expect to receive that information in written form through appropriate channels.

INTRODUCTION OF WITNESSES

Our principal witnesses today are Donald Latham, the Deputy Under Secretary for Communications, Command, Control and Intelligence; and Director Robert Cooper of the Defense Advanced Research Projects Agency.

Gentlemen, your prepared statements will be printed in full in the record. We would like you to highlight them for us. Mr. Latham, I understand you are prepared to present a short briefing on the systems that we will be discussing this morning.

As I have indicated we do have a planning session for the next week. I will have to leave in about 30 minutes. Senator Schmitt will continue the hearing as long as he is available to do so.

Proceed as you like, gentlemen.

DEFENSE ADVANCED RESEARCH PROJECTS AGENCY

STATEMENT OF DR. ROBERT S. COOPER

Dr. COOPER. Senator, I would like to highlight a few key points about our space programs which I think are some of the more important programs that we have in the Defense Department.

These programs by and large support our military activities and to highlight the reason why space is so important to us the Soviets have a numerical superiority over the United States in equipments. For military equipments they are producing equipment at about twice the rate that we are. Since they have about twice as many men under arms to operate these military equipments they represent a formidable potential opponent in the future.

To counter this numerical superiority in equipment we have taken the technological path. We are employing high technology in our military systems in order to be able to cope with the numerical superiority in equipments that the Soviets could mount against us in any future conflict.

Space plays a key role in this high technology approach, being a force multiplier for our forces on the surface with a wide variety of supporting systems. Navigation systems, communications systems, surveillance systems, water systems, and a wide variety of intelligence-gathering systems deployed in space to support our forces on the surface.

BUDGET REQUEST

This year we are requesting for all of our space-related programs about $8.5 billion, up about 20 percent in real growth over our request of fiscal year 1982. We feel that these funds need to be spent in order to provide us with this force multiplication capability that will allow us to cope with the Soviets potentially in the future.

MANAGEMENT ACTIONS

Now along with our request go a number of management actions that we are taking Defense and in the administration as a whole. You know that the President has commissioned a national space policy review which is under the direction of his science adviser, Dr. Keyworth.

Defense is participating in that overall review of space policy with the idea of better employing our space assets for our national purposes, including the military purposes.

SPACE POLICY REVIEW

In addition, defense has over the last 6 months conducted an internal review of Defense space policy. We have a new draft defense space policy document which is being coordinated within the Defense Department and should be available soon enunciating the key elements of defense space policy that will guide our employment of these very important and critical space assets for military purposes.

EMPHASIS ON SPACE DEFENSE

As you know also, we have a major new emphasis in Defense on space defense. That is, the ability to protect our assets in space and to assure that we will be available in times of military conflict against a high technology adversary. This new emphasis on defense of our assets in space takes two major forms.

One of those is a renewed emphasis on the survivability of our space systems; and second, the ability to deny access to space of potential adversaries through the development of a new anti-satellite system.

These two thrusts, that is being able to deny with the anti-satellite and survivability, are key features of a good fraction of the spending that we will be doing in the space area over the next few years.

RESEARCH PROGRAMS

Finally, there is a controversial area of research which we are undertaking. If you look at the $8.5 billion, $972.5 million of those funds will be expended for supporting research and development.

In that total, approximately $150 million is being devoted to space-based laser weapon research and development, a very high-risk, but potentially high-payoff technology for the future.

We reserve the right to move forward in these space weapon areas and are vigorously pursuing the objectives of achieving the capability to deploy space weapons in the future if we find that to be necessary.

Now the Soviets are very active in space. Last year there were about 100 Soviet launches of space-related activities; the wide majority of those being for military purposes. They placed 124 different payloads into Earth orbit and those payloads were by and large used for support of their military forces. So they understand the importance of space, as we do, and they are vigorously working to develop space systems that support their military forces.

I have with me here this morning Don Latham who, as you pointed out, is Deputy Under Secretary for C3I and he has a statement to make and a briefing with respect to our C3I.

[The prepared statements of Dr. Robert S. Cooper and Mr. Donald C. Latham follow:]

PREPARED STATEMENT OF DR. ROBERT S. COOPER

DIRECTOR

DEFENSE ADVANCED RESEARCH PROJECTS AGENCY

Mr. Chairman and Members of the Subcommittee, I am pleased to have this opportunity to appear before you this morning to review the Space Activities of the Department of Defense. Mr. Latham will review our current activities in the use of space for communications, navigation and surveillance. I will review our recent management initiatives and provide you a perspective on the future based upon today's R&D in space technology.

MANAGEMENT OF THE DOD SPACE PROGRAM

Due to the similar nature of the work performed by NASA and DoD, it is clearly in our mutual best interest to cooperate extensively in many endeavors. This cooperation manifests itself primarily through the many jointly-manned research and operational facilities which conduct space technology research. In addition, senior management maintains oversight for our common interests through the Aeronautics and Astronautics Coordinating Board (AACB). The AACB, co-chaired by Dr. Hans Mark, Deputy Administrator of NASA, and Dr. Richard DeLauer, Under Secretary of Defense for Research and Engineering, meets periodically to review programs of mutual interest and develop plans for our future programs. Technical interchange is assured through the standing panels of the AACB along with numerous working groups which are formed to address specific issues.

The Department is actively participating with Dr. Keyworth, Presidential Science Advisor, in the study sponsored by his office on U.S. Space and Aeronautics Research Policy for the 1980's and 1990's. I have been designated as the DoD member of the Senior Executive Review Panel. In addition, personnel from all three Military Services are supporting the study through membership on the working group. I am certain that this will be a significant and far reaching activity, with policy implications which could have major impact on the future.

In addition, the DoD is in the final stages of an internal review of its space policy. This was felt to be necessary in order for the DoD to effectively plan the future course for the military use of space. This Department-wide study is chaired by the Under Secretary for Policy and is intended to produce a comprehensive DoD Space Policy to guide the conduct of the space activities of the Department. The DoD Space Policy will also serve as a frame of reference for the Department to address some of the issues being reviewed in the National Space Policy Review also under the auspices of the Office of Science and Technology Policy.

In establishing the basis for the new DoD Space Policy, careful consideration is being given to treaties and international agreements impacting the use of outer space and the body of existing U.S. Space Laws and Policy.

Centralizing the management of space activities within the DoD, has been discussed for some time. Recently a Bill has been introduced in the House (H.R. 5130) which directs the Secretary of the Air Force to report to Congress on the feasibility and desirability of establishing a separate command for space. Our organization for space has been evolving fairly rapidly over the past four years. Within the Office of the Secretary of Defense we have established the Defense Space Operations Committee. The Air Force has established a Space Operations Steering Committee and has formed a New Directorate of Space with the Deputy Chief of Staff for Plans and Operations at Headquarters Air Force. The Under Secretary of Defense for Research and Engineering has asked me to act as the principal focus for review of Space Research and Development across all mission areas. All these organization changes were made to sharpen our focus for space activities and bring increased management attention to this important area. We will continue to evaluate organizational alternatives to effectively manage our space activities.

DOD SPACE RESEARCH AND DEVELOPMENT

Let me turn now to our Research and Development activities. We are continuing to expand space-related R&D within the Department of Defense to insure that we are not technologically surprised by any adversary, to advance our own capabilities in space and to improve the survivability of future space systems. In FY 1983 we have requested $972.5 million for Defense R&D programs. This represents a real growth of 20 percent relative to the $755.2 million appropriated in FY 1982.

Supporting Science and Technology

The Department of Defense is investigating a wide range of space technology to maintain our present lead over the Soviets in selected areas. Several of these technology base efforts, such as lasers and particle beams, are highlighted elsewhere in this statement. The following are some of the others which offer considerable promise.

Several programs related to missile surveillance technology are developing sensors and collecting background data for application of infrared (IR) technology to surveillance and warning missions. In missile surveillance technology, new infrared measurement hardware was purchased during 1981 to improve the accuracy and effectiveness. Rocket and balloon flights are planned for 1982. Infrared data on earth backgrounds and rocket engine plumes will provide a major contribution to system design considerations for a space-based missile surveillance system. In space surveillance technology, the space infrared sensor, precursor to a space-based surveillance system, was completed and awaits a decision to launch.

The Navy, Air Force and Defense Advanced Research Projects Agency (DARPA) in 1981 accelerated development of critical technologies supporting advanced concepts and technology for strategic and tactical surveillance from space. Programs possibly leading to demonstration of these technologies in a system level proof-of-concept experiment for improved mission performance are continuing.

Development of surveillance technology for infrared mosiac detector arrays, onboard signal processing, cryogenic refrigerators, large optics, and structures continued in 1981. A new generation of detector arrays, physically integrated with preprocessing electronics in a planar configuration, was tested. The breadboard model of a lightweight, large-data-capacity, onboard processor was successfully demonstrated against real target and background data from the HI-CAMP airborne imaging spectroradiometer. Quantity production of Teal Ruby mosaic chips using the fully automated cryogenic test set was performance-qualified. DARPA completed the system requirements review of the Advanced Sensor Demonstration program to demonstrate advanced surveillance missions and the technology base developed to support them. Technology development continued for key components and concepts for space-based radar, including transceiver modules, large lightweight phased array antenna structures, and onboard signal processing components.

Many of the advanced space technologies being developed will require substantially more power in space than projected to be available from solar array technologies. The need for hardened advanced power systems compatible with the Shuttle is becoming apparent. Such power systems may well be useful in a wide variety of military space missions, both conventional and exotic. For this reason we are starting to investigate space nuclear power technology in concert with NASA and the Department of Energy.

Advanced microwave technology on miniature, low cost radar transceiver modules using integrated circuit technology is being pursued. Low cost/weight and high efficiency of the modules are key factors in feasibility for use in space-borne radars as well as a variety of other phased array radar and communication applications in airborne and surface systems. A silicon-on-sapphire MOSFET power amplifier has been demonstrated. Improved designs for low noise amplifiers, phase shifters and passive transmit/receive switches will soon be evaluated. Fabrication and testing of fully integrated modules are planned for late-1982. Similar critical components in gallium arsenide technology have been demonstrated and improved designs will be evaluated in 1982. Work has continued to demonstrate antenna pattern performance of candidate space-borne, phase-array radar membrane structures.

Space Transportation System

Truly significant space accomplishments of this past year were the successful flights of the Space Shuttle Columbia. Never before has a spacecraft demonstrated the capability to fly a second mission. This historic precedent marks a major event in the exploitation of space. No longer will space be only a place for experiments and operational platforms whose reliability relies exclusively on autonomous systems. The space shuttle provides the key for a sustained presence in space, as a working environment. The capability to deploy, retrieve, service and repair operational platforms is at hand. These capabilities, portend a transformation in our use of space. The emphasis now shifts from getting there to working and exploiting the space environment.

NASA has taken the lead in the development of the Shuttle, as you are aware. We in the DoD have made a strong commitment to exploit the Shuttle and its associated technologies in our future space planning, and we look forward to the routine operational availability of the Shuttle to enable full consideration of its unique capabilities to enhance our space operations. In addition, we have accepted responsibility for the development and operation of the Shuttle launch site at Vandenberg Air Force Base for polar orbiting missions, for the development and production of the Inertial Upper Stage (IUS) for use on both civil and DoD space missions, and the development of a number of Shuttle related operational capabilities which will enable the DoD to fully exploit the Shuttle. We are also providing 42 active duty military personnel as Astronauts. When coupled with the four retired military Astronuats, we observe that over 50 percent of the active Astronaut cadre of 81 are from the DoD.

Both NASA and the DoD are investigating launch vehicle concepts to supplement the space Shuttle. One concept under consideration is the so-called "Big Dumb Booster", or SRB-X, that uses one or three solid rocket boosters, plus upper stages, to orbit up to 100,000 pounds. Another concept is the "in-line" launcher concept that uses a module with one or two main engines placed under the Shuttle external tank and a large cargo placed atop the tank. These concepts are of interest because they would permit operation of a mixed fleet of space launchers that would make broader use of shuttle systems but not always require the shuttle orbiters which may not be able to meet all future demands for space transportation.

The Air Force is studying several vehicle concepts. New concepts and advanced technology designs will be studied under a program called the Advanced Military Spaceflight Capability. Primarily, we are looking toward a vehicle that could provide a significant increase in unique military capabilities including survivability. Emphasis is being given to such requirements as on-demand launch, use of conventional airfields, military mission capability, etc. The Air Force Space Division has initiated an effort to identify requirements, to determine what systems will be necessary, and to pinpoint specific technology which will be needed to support development of these systems.

As military data from space has become more essential, the requirement for a more responsive launch capability has become more critical.

Quick reaction launch, survivable launch, and reusable aerodynamic space vehicles are examples of concepts which have been proposed to meet this need. Our proposed effort for the Advanced Military Spaceflight Capability (AMSC) program includes research in those technologies which are critical to, and common to, the various AMSC vehicle concepts.

We believe that the nation needs an additional capability to complement the IUS capabilities and provide us an available option for higher performance in the future. A thorough assessment of the options which could provide that capability were examined early this year. However, all the affordable available options resulted in an unacceptable level of risk for our defense launch capability. As a part of this assessment, we investigated Centaur and found that it would not provide for the potential defense payload requirements. We are therefore proceeding with NASA to develop a higher energy, second generation upper stage for future use.

In summary, we are working closely with NASA in efforts to define our aggregate national needs for space transportation.

Space Weapons

The increasing capabilities of military space systems and the operating forces' reliance on them mark military satellites as attractive targets and unerscores the importance of free access to space for our national systems. The Soviet Union's deployment of an operational antisatellite system demonstrates their understanding of that situation and provides additional rationale for DoD consideration of the role of space weapons. We must develop the means to deter an enemy from using antisatellite weapons against our military satellites. Furthermore, if deterrence fails, we must be able to protect our satellites using, if necessary, active satellite defense weapons.

In response to a Congressional request, DoD conducted a major review of the potential of space-based laser weapons which is documented in the 15 May 1981 DoD report to the Congress on Space Laser Weapons. We concluded that space-based lasers offer military potential in a number of applications, but there are significant uncertainties which preclude prediction of their ultimate utility. Accordingly, we have augmented our space-based laser program to more aggressively pursue resolution of the critical uncertainties.

There are some obviously attractive benefits for using laser weapons in space. Without the atmosphere, the laser beam is not disturbed from the weapon to target. Thus, lasers have the potential to transmit damaging energy at the speed of light over very long distances. Furthermore, lasers are not weapons of mass destruction. They direct energy to a prescribed target area and nowhere else. However, there are also many uncertainties which would make a space-based weapon commitment today very risky. These were identified in seven major areas listed in order of priority: target vulnerability and hardening, utility, survivability, system definition, baseline technology demonstration (DARPA TRIAD), enabling technology, and growth technology.

The current DoD space laser program is balanced between near-term and far-term technologies and is specifically focused to attempt to resolve these uncertainties to allow an informed weaponization commitment. Less than 20 percent of our budget request is planned for chemical laser device technology. Approximately 40 percent is planned for advancing the technologies of acquisition, tracking and pointing, and optics related to chemical laser operating parameters but more generic in nature with a potential to support other approaches to directed energy weapons. About 20 percent of the budget request is planned for advanced short wavelength device research and supporting technology development. The remaining 20 percent of the budget request is to be applied to resolving system related uncertainties of space laser weapons including system definition, target vulnerability and hardening, system survivability, and cost effectiveness/exchange analysis. Although we are covering all bets, it is our assessment that, unless there are major technological breakthroughs, the chemical laser is the only technology that will support the development of an operational space laser weapon system by the end of this century. All of the more exotic laser device technologies capable of generating beams with wavelengths shorter than those from chemical lasers are many years less mature and our efforts to develop the other major elements needed to exploit short wavelength devices have barely begun.

Work is also proceeding on the development of neutral particle beam technology as another alternative for space-based directed energy weapons. Although this technology is at a very early stage in its development, neutral particle beams ultimately offer the potential to deliver lethal energy at near the speed of light and deposit it deep within a target with devastating efficiency.

In summary, I believe the current efforts in DARPA and in the Air Force and Army are adequately funded to pursue the most promising approaches, as well as to seek new approaches in advanced laser devices and supporting technology. I want to assure you of a positive, aggressive program to use the resources provided by the Congress to resolve the key uncertainties which will allow us to move confidently and knowledgeably to space laser weapons. I will be sensitive to the "show-stoppers" which may preclude space laser weapons; but I will be equally sensitive to the technology breakthroughs which may allow our plans to accelerate. I will inform the Congress as appropriate on these developments and I intend to be responsible to your guidance.

Concluding Remarks

As we move into the mid-1980's, this Administration has drawn attention to the increasing rise in Soviet capabilities. This rise is not limited to the tactical and strategic warfare programs, but also is taking place in the Research and Development activities on which the space programs of the 1990's will be based. In order to meet the Soviet challenge, we must work together to ensure the continued superiority of our national technological capabilities and to maintain the currently aggressive effort to provide this country with options for potentially revolutionary new classes of space weapons and military support equipment.

I view the DoD Space Program as critical to our national security, and I, therefore, encourage your full support.

PREPARED STATEMENT OF DONALD C. LATHAM

DEPUTY UNDER SECRETARY OF DEFENSE

COMMAND, CONTROL, COMMUNICATIONS AND INTELLIGENCE

I. INTRODUCTION.

Good morning, and thank you for the opportunity to discuss with you what we believe to be two critical components of our military capability--namely, strategic communications, command and control (Strategic C^3) and Department of Defense space activities. These components overlap to some degree. Let us begin by discussing strategic C^3 objectives and systems.

II. OVERALL OBJECTIVES OF STRATEGIC C^3.

Our strategic C^3 system must provide the capability to respond to a Soviet nuclear attack and to command our retaliatory forces, that is, our ICBM, bomber and SLBM forces. This system must provide warning and attack assessment, support decision-making, and assure communications to the forces to execute the decisions. The difficulty of this mission is intensified by the extreme stresses under which the strategic C^3 system must function: direct and indirect effects of nuclear detonations, jamming, and the very short time available to evaluate and select response options.

During peacetime, the stragegic C^3 system must have absolute credibility, because it exists to support the most consequential decisions any President will have to make, and because such credibility is a cornerstone of a strong nuclear deterrent. In time of war, the strategic C^3 system must endure, to provide the President with means for directing our surviving forces to achieve termination of conflict on favorable terms.

Our overall objective is to achieve a balance of strength across the essential functional elements of strategic C^3: surveillance, command and control, communications and information management. A perceivable weakness in any of these elements weakens the entire system and erodes our deterrent.

It is appropriate at this point to spell out the relationship between strategic C^3 and deterrence in greater detail.

III. STRATEGIC C^3 AND DETERRENCE.

Strategic C^3 systems relate to our deterrent posture, and the acquisition programs for strategic C^3 in the FY 1983 budget request fit together to support achievement of needed improvements and new capabilities to strengthen the deterrent.

The credibility of our strategic deterrent depends on a perceivably strong linkage from:

- --our declaratory policy for deterrence of nuclear conflicts, to
- --our military strategy and force employment plans to implement that policy, and then to
- --the means to manage the forces, in order to execute the plans

Regardless of how cogent our statement of policy for deterrence is, its credibility is flawed if there are perceivable weaknesses in the rest of the chain Such weaknesses can arise from a number of factors to include increased threats to the strategic forces and the supporting C^3 system. A combination of these factors necessitates a substantial effort for modernization of the force management link, the strategic C^3 system.

IV. THE STRATEGIC C^3 FY 1983 BUDGET REQUEST.

For the Fiscal Year 1983, Department of Defense is requesting \$2.8 billion for strategic C^3 programs. This request supports four functional areas of strategic C^3.

- --surveillance sensors and associated processing facilities and equipment for warning and assessment of attacks,
- --command and control centers, for evaluation of sensor data, response option evaluation, and decision-making

- --communication systems for linking the sensor systems to the command centers and command and control centers to the forces
- --information systems to process force status data, facilitate planning and exercise evaluation, to support the response-selection process, and manage the communication networks.

Well over half of the FY 1983 Strategic C^3 budget request is for investment: procurement and construction of new equipment and facilities, and research, development, test and evaluation for achieving needed new capabilities.

V. BASIS FOR THE STRATEGIC C^3 BUDGET REQUEST.

There is no question that this is a rather sizeable bill, and I should explain how the Department arrived at the overall program that we are asking you to support.

Last spring and summer, by direction of President Reagan, the Department conducted a high-level review of the strategic C^3 system. This review addressed, comprehensively and in depth, the capabilities and deficiencies of the current strategic C^3 system. In addition to the hardware elements of the system, the review examined the strategic C^3 process on an end-to-end basis--including sensor functions, communications and decision-making, and aspects of the process that are unique to individual legs of the strategic triad--in short, all of the elements that must work if the system as a whole is to function as intended. Where possible, procedural changes were identified to work around potential shortcomings in equipment capability. Threats to the strategic C^3 system were examined in detail, and the capabilities of the current system and relevance of ongoing and proposed modernization initiatives for meeting those threats were assessed. This "Strategic Connectivity Review" resulted in a report to the President last August.

The findings of the Strategic Connectivity Review were subsequently addressed during the Department's program and budget reviews in the context of strategic force needs. The resulting program for modernization of the strategic C^3 system was thereby formulated in balance with the program for strategic weapons modernization. As a result, the President's announcement, on October 2, 1981, of the strategic modernization program included, with the highest priority, the modernization of strategic C^3I as a major element of that program.

VI. STRATEGIC C^3 PROGRAMS.

Our strategic C^3 program addresses three primary areas: warning and attack assessment, command centers and communications.

In the warning and attack assessment area we have a significant number of ongoing and new initiatives. We will improve the survivability, performance and coverage of radars and satellites used to warn us of a Soviet missile attack and to assess its size and scope. We will deploy several mobile ground terminals for processing data from our launch-detection satellites. Mobile systems such as these are very difficult for the Soviets to target. The satellites themselves will be upgraded to improve survivability, endurance and connectivity to the ground processing facilities. Capabilities for launch detection and attack characterization are being improved. Connectivity from the mobile ground terminals to the ground-based radars which serve to confirm satellite launch detection will be improved to provide better coverage and estimates of the size and objectives of a Soviet missile attack. Additional PAVE PAWS SLBM detection radars will be deployed to improve coverage of potential Soviet submarine operating areas to the southeast and southwest of the United States, and the Ballistic Missile Early Warning System will be upgraded for better attack characterization.

Development of the Integrated Operational NUDETS Detection System (IONDS) is being pursued to provide a capability to detect, locate and report in near real-time nuclear detonations on a global basis. The plan is to place sensors on NAVSTAR Global Positioning System (GPS) satellites and provide read-out and display equipment for a number of users. IONDS will enable military users to assess retaliatory strikes and to evaluate damage sustained from Soviet strikes. The latter capability is essential for managing surviving forces and reconstitution operations.

We must also, in coordination with Canada, correct major deficiencies in the North American airspace surveillance network, which has been virtually ignored for well over a decade. In accordance with the President's strategic modernization initiative, we will deploy a combination of new over-the-horizon backscatter (OTH-B) radars and improved versions of the ground radars that exist today. These will serve to deny a no-warning bomber attack option to Soviet strike planners.

In the command post and aids-to-decision making area we are upgrading the survivability and capability of command centers that would direct U.S. strategic forces during a nuclear war. This will include the continued deployment of EMP-hardened E-4B airborne command posts to serve the National Command Authority in time of war. EC-135 airborne command posts serving military commanders will be hardened against nuclear effects and will be equipped with upgraded satellite and very low frequency/low frequency communications to enhance their ability to communicate with the National Command Authority, communicate execution decisions to the retaliatory forces, and manage the reserve forces. We are initiating a program to develop mobile command centers to provide an enduring complement to the airborne C^3 assets. These will provide means for lower-echelon command functions, as well as assuring continuity of command at the highest level.

Our strategic communications programs are structured to deploy survivable communications which link command centers with the three legs of the TRIAD.

Very low frequency/low frequency communications receivers will be developed and installed on strategic bombers to further ensure their reception of orders under stressed conditions.

We will improve communications to the submarine forces by deploying a two-site extremely low frequency (ELF) communications system. This system will free submarines from operational constraints imposed by current capabilities which require the submarine to trail an antenna at or near the surface and maneuver at low speeds.

A new satellite communications system, MILSTAR, will be developed providing extremely high frequency (EHF) communication channels that will enable assured, two-way communications from our national command centers to the bomber and submarine forces plus support communications to tactical forces.

Use of EHF for military communications will circumvent the effects of nuclear detonations that can disrupt current ultra-high-frequency satellite communications links, provide a substantial increase in anti-jam performance, and, because of the high directivity of EHF antennas, enable low-probability-of-intercept communications to enhance covertness.

We are also initiating development of a proliferated ground-wave communications system as an overlay to commercial telecommunications systems to provide assured transmission of warning action message and force direction data at the outbreak of hostilities, and an austere enduring backbone communications capability following nuclear attacks.

VII. DEPARTMENT OF DEFENSE ACTIVITIES.

At this point, it is appropriate to address our space activities more generally. These are continuing to expand, maintaining the trend of the past few years. Our military forces are becoming increasingly dependent upon space capabilities with attendant increases in effectiveness. In FY 1983 we have requested $8.5 billion for the Department of Defense space programs. This represents a real growth of twenty percent relative to the $6.4 billions appropriated in FY 1982.

A. Space-Based Laser Communications. The Joint Navy-DARPA laser communications program is developing technology to communicate from space, using blue-green lasers, to submarines at operational depths with minimal impact on covertness and flexibility. In the near-term, building on a highly successful aircraft-to-submarine communications experiment conducted in 1981, we are developing a tactical airborne laser communications capability. This can fill an important void and could be used in a variety of tactical operations involving coordination of subsurface with air and surface forces.

Over the long term, a space-based laser communications system if cost-effective, could provide global coverage, and flexibility in both tactical and wide-area strategic submarine operations. The technology for two concepts is being explored with the objective of reaching a decision in late FY 1984 whether to proceed at all. One approach uses a blue-green laser in space, and the other uses a passive mirror satellite to reflect an upward-directed blue-green laser beam. In either case, the laser beam would form a spot on the surface of the sea, and the spot would then be swept over a very large region of the ocean, to provide connectivity to submarged submarines.

B. Satellite Communications. In the area of military satellite communications systems, we have spent a year and a half on a joint effort with all the services and agencies involved to define a new military satellite communications architecture. This architecture relates combat and combat-support communications capacity, needs to near, mid and far term systems in the presence of the overgrowing Soviet threat. The MILSTAR EHF satellite communications program has already been mentioned, and is the heart of the long-term architecture. We anticipate the DSCS III program will continue to provide its unique and vital services throughout the 1980's. We are asking for funds for the acquisition of three additional FLTSATCOM satellites to ensure we do not have a gap in communications service to strategic and tactical users until the MILSTAR system is sufficiently operational.

C. Meteorology. The Defense Meteorological Satellite Program (DMSP) supports DoD needs for weather information. Its operational requirements dictate the collection of weather data in centralized centers from at least two satellites continuously in orbit, obtaining coverage from all points on the earth at least four times each day. Regional weather data is also transmitted in real time to transportable read-out stations at key locations worldwide to support Army, Navy and Air Force tactical operations.

D. Navigation. The DoD is continuing the development of the extremely important NAVSTAR Global Positioning System (GPS) to satisfy the military need to provide precise position and navigation information to force elements. NAVSTAR GPS will provide users with precise position information on a 24-hour, global basis under all weather and visibility conditions. This capability will significantly enhance the mission effectiveness of all U.S. military forces. In addition to its primary function of improving U.S. and allied military forces' weapon delivery and target destruction capabilities, GPS has the potential to provide unique positioning and navigation services to civil and commercial interests on a worldwide basis. As was mentioned earlier, GPS satellites will also play another extremely vital defense role, by carrying the Integrated Operational Nuclear Detection System (IONDS) payloads.

VIII. CONCLUDING REMARKS.

Today, we have had the opportunity to review two of the most important and challenging components of the Department of Defense.

For the strategic component, the program takes the first steps towards providing a more credible strategic C^3 posture, which supports our deterrent policy. We will reinforce these steps by providing a technology research and development base for continued improvement and to support additional steps that will be needed. Particular emphasis will be placed in the areas of endurance throughout a protracted conflict and reconstitution after an attack.

For the space component, our programs are designed to support national security objectives and maintain the vital technological lead that we now enjoy. Maintaining the technological lead will be particularly challenging in an era of increasing Soviet capabilities in space. In order to meet the challenge, we will work with the Congress to ensure the continued superiority of our space capabilities.

Mr. Chairman, this concludes my remarks. We will be happy to answer any questions you or the Committee might have.

DISCUSSION OUTLINE

- PRIORITIES AND GUIDANCE
- STRENGTHENING OUR DETERRENCE WITH C^3I
- RESOURCE REQUEST
- MAJOR C^3I PROGRAM INITIATIVES
- ASSESSMENT AND REMAINING CHALLENGES

CHART 1

MAJOR SPACE SYSTEMS

Mr. LATHAM. I would like to run down quickly for you the strategic C3 area, and focus on three or four of the major space systems that we are pursuing, as you mentioned, the military communications satellite area and areas such as navigation and positioning systems.

I would like to show you what our priorities and guidance are that have been put into the defense guidance that the Secretary publishes each year, talk briefly how C3I is a major factor in strengthening our deterrence, show what the resource request is, talk to you briefly about a few of the major program initiatives, and give you an assessment as to where I think we are going.

COMMUNICATIONS, COMMAND AND CONTROL (C^3) MISSION AREA STRUCTURE

STRATEGIC PROGRAMS	THEATER & TACTICAL PROGRAMS	WARFARE C^2
• STRATEGIC C^2 • STRATEGIC S&W • STRATEGIC COMM • STRATEGIC INFO SYS	• THEATER C^2 • THEATER COMM • TACTICAL C^2 • TACTICAL COMM	• LAND WARFARE • AIR WARFARE • NAVAL WARFARE

DEFENSE-WIDE SUPPORT	EW & C^3 COUNTERMEASURES
• NAVIGATION & POSITION-FIXING • SUPPORT & BASE COMM • COMMON-USER COMM • COMSEC	• SELF-PROTECTION • ESCORT, STAND-OFF & COUNTER C^3 • TACTICAL SURVEILLANCE, RECCE & TARGET ACQUISITION • MULTIMISSION, TECHNOLOGY & SUPPORT

CHART 2

C3 MISSION

Mr. LATHAM. The C3 mission area is subdivided in the Defense budget as shown here, the strategic programs, theater and tactical programs, air warfare, which would be the AWACS equipments, and naval warfare which is the E-2C airborne radar warning system.

In the defense-wide support we currently have navigation and position fixing, and in electronic warfare and C3 countermeasures are a number of supporting missions such as surveillance and reconnaissance area which are generally aggregated in the tactical and intelligence-related activities. We will focus on the strategic side, and I will talk about navigation and position-fixing areas.

PRIORITIES FOR STRATEGIC C^3

(SOURCE: FY 1984-1988 DEFENSE GUIDANCE)

- ASSURED RELIABLE PERFORMANCE IN PEACETIME, INCLUDING EXERCISES
- CAPABILITY TO EXECUTE THE SIOP DURING OR AFTER AN ATTACK
- SUPPORT TO CONTINUE OPERATIONS OVER A PROTRACTED PERIOD OF CONFLICT

CHART 3

C3 STRATEGIC PRIORITIES

If you look at the priorities for strategic C3 as laid out in the new guidance that the Secretary issued last month, we have three major thrusts.

First, to be able to make sure the systems perform reliably in peacetime and in exercises.

Second, to be able to execute the SIOP during or after the attack.

Lastly, to be able to support operations over a protracted period of conflict. This is a major thrust to be able to handle that type of guidance.

OBJECTIVES FOR STRATEGIC C^3

(SOURCE: FY 1984-1988 DEFENSE GUIDANCE)

MODERNIZE AND IMPROVE IN SIX FUNCTIONAL AREAS:

- COMMUNICATIONS
- COMMAND POSTS
- INDICATIONS AND WARNING
- NAVIGATION AND POSITION FIXING
- SATELLITE MISSION CONTROL
- AIR SURVEILLANCE OF NORTH AMERICA

CHART 4

C3 FUNCTIONAL AREAS

If you look specifically at the six functional areas in C3 that we believe need improvement and modernization, these are noted here. I will touch briefly on some of these this morning.

Specifically, the first thing I will talk about in detail is what the initiatives are in those areas. We will talk briefly about navigation and position fixing systems. We will not discuss satellite mission control or air surveillance of North America. However, as you know, we have submitted a master plan, the DOD Master Plan for Air Defense of North America in conjunction with the Canadians. That is a new thrust to revitalize the North American air defense system in CONUS and in Canada.

A WAY TO VIEW C^3I

—THE C^3I TRIAD—

1. WARNING AND ATTACK ASSESSMENT
2. THE COMMAND FUNCTION
3. SUPPORTING COMMUNICATIONS

CHART 5

BUDGETARY VIEW OF C3

One helpful way to view C-3I is from the point of view of breaking down the budget functionally talking about warning and attack assessment associated command and decision functions to execute the forces, and lastly, all the supporting communications that help all that occur.

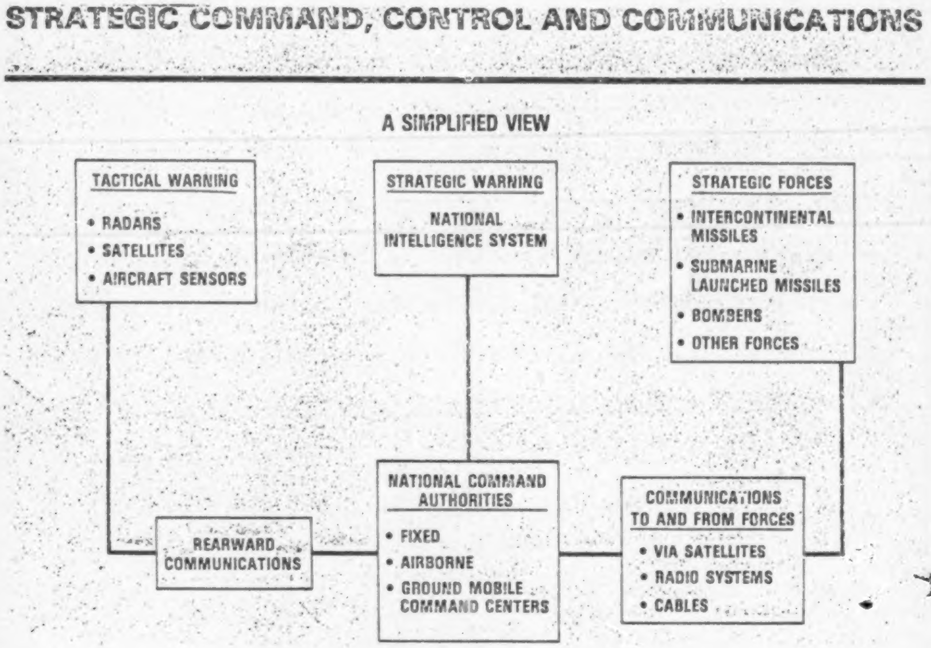

STRATEGIC COMMAND, CONTROL AND COMMUNICATIONS
A SIMPLIFIED VIEW
TACTICAL WARNING
• RADARS
• SATELLITES
• AIRCRAFT SENSORS
STRATEGIC WARNING
NATIONAL INTELLIGENCE SYSTEM
STRATEGIC FORCES
• INTERCONTINENTAL MISSILES
• SUBMARINE LAUNCHED MISSILES
• BOMBERS
• OTHER FORCES
REARWARD COMMUNICATIONS
NATIONAL COMMAND AUTHORITIES
• FIXED
• AIRBORNE
• GROUND MOBILE COMMAND CENTERS
COMMUNICATIONS TO AND FROM FORCES
• VIA SATELLITES
• RADIO SYSTEMS
• CABLES

CHART 6

STRATEGIC WARNING SYSTEM

If you look at it in a very simplified way, we have today a strategic warning system that is really also a national intelligence system, working 24 hours a day, inputting information to the National Command Authority in various locations.

The strategic warning as opposed to tactical warning is defined as that warning function that is performed prior to "any shots being fired," for example, or any missiles being launched. So it is an indication and warning function that is prior to physical hostilities.

As the Secretary of Defense has noted in his posture statement to the Congress, it is very likely that this warning is going to be ambiguous and it is going to take careful thought to see how you figure out what those ambiguous indicators mean.

In addition to the strategic warning, we have tactical warning such as radars, satellites and aircraft sensors which are mechanical sensors in the sense they sense physical phenomena like missiles being launched. We view some actions with an infrared device and also detect it on radar. These radar and satellites are deployed such that we can sense ICBM and SLBM launches. That information is transferred by rearward communications into the National Command Authority where decisions are then made. Using communications these decisions are then sent to the forces for execution of whatever the President has decided to do under the circumstances of that situation.

STRENGTHENING OUR DETERENCE
PRESIDENT REAGAN'S COMPREHENSIVE PROGRAM

- REVITALIZE OUR STRATEGIC NUCLEAR DETERRENT
  - CREATE A MORE STABLE AND SECURE DETERRENT
    - THE PRESIDENT'S PROGRAM - FIVE MUTUALLY REINFORCING ELEMENTS
      - FIRST: IMPROVE OUR COMMUNICATIONS AND CONTROL SYSTEMS
        - SURVIVABILITY AND ENDURANCE
        - IMPROVED WARNING
          - (DELETED)
          - PAVE PAWS
          - NORAD UPGRADES
        - NEW COMMUNICATIONS SYSTEMS
          - GWEN
          - MILSTAR
          - ECX
        - SURVIVABLE COMMAND FACILITIES
          - MCC
          - NECAP
        - NORTH AMERICAN AIR DEFENSE

CHART 7

COMMUNICATIONS AND CONTROL SYSTEM

If you examine the program that the President submitted to you in the announcement he made on October 2, he described five pieces of the strategic package. On top of that package was the command control communications area. We view the five-part package as an interlocking set of initiatives.

The improvements in the communications and control systems that were noted, as Dr. Cooper noted, were survivability and endurance to improve the warning situation, new communications systems, survivable command facilities, and North American air defense.

WARNING AND ATTACK ASSESSMENT INITIATIVES

- SURVIVABILITY UPGRADES TO WARNING SATELLITES
- MOBILE GROUND TERMINALS FOR WARNING DATA READOUT
- TWO NEW PAVE PAWS RADARS
  - SOUTHEAST
  - SOUTHWEST
- MODERNIZATION OF DMEWS RADAR SYSTEMS
  - NEW COMPUTERS
  - RADAR IMPROVEMENTS
- ADVANCED WARNING CONCEPTS IN R&D
- INTEGRATED OPERATIONAL NUCLEAR DETONATION DETECTION SYSTEM (IONDS)
  - HOSTED ON THE NAVSTAR SATELLITES
  - A VITAL PROGRAM

Chart 8

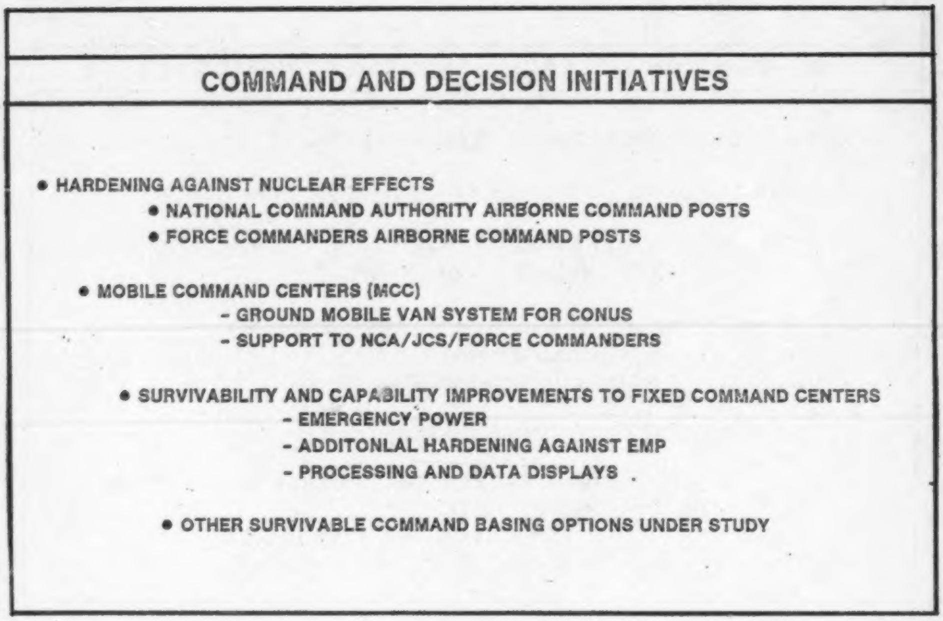
WARNING AND ATTACK ASSESSMENT INITIATIVES

In the warning and attack assessment initiatives, as you know, we have certain warning satellite systems operational today that can view the broad ocean areas and the Soviet and PRC land mass, forewarning of any ICBM or SLBM launches. There are a number of upgrades to improve their survivability.

We are procuring six mobile ground terminals that will be deployed in CONUS for readout of the data on those satellites such that we are not dependent on ground terminals for readout. Deployed will be special satellite communications terminals to relay data immediately to command center.

We are going to deploy two new PAVE PAWS radars in the Southeast and Southwest. We have two radars in the Northeast and Northwest. These are primary radar sensors. We will be modernizing our BMEWS radar systems with new computer and radar improvements to the new UHF radars for better attack assessments and characterization. There are a number of advanced warning concepts in R. & D., principally in DARPA under Dr. Cooper.

Last, as you know, we have a new sensor system called the Integrated Operational Nuclear Detention System or IONDS that is hosted on global position satellites to be deployed during the eighties. That is a very vital sensor system to provide attack assessment after the strike has occurred and damage assessment on ourselves, once a strike has been made.



COMMAND AND DECISION INITIATIVES

- HARDENING AGAINST NUCLEAR EFFECTS
    - NATIONAL COMMAND AUTHORITY AIRBORNE COMMAND POSTS
    - FORCE COMMANDERS AIRBORNE COMMAND POSTS

- MOBILE COMMAND CENTERS (MCC)
    - GROUND MOBILE VAN SYSTEM FOR CONUS
    - SUPPORT TO NCA/JCS/FORCE COMMANDERS

- SURVIVABILITY AND CAPABILITY IMPROVEMENTS TO FIXED COMMAND CENTERS
    - EMERGENCY POWER
    - ADDITONLAL HARDENING AGAINST EMP
    - PROCESSING AND DATA DISPLAYS

- OTHER SURVIVABLE COMMAND BASING OPTIONS UNDER STUDY

CHART 9

COMMAND AND DECISION INITIATIVES

The command and decision initiatives are shown here. The important areas such as hardening against nuclear effects on the national airborne command posts, E4-B. We have four E4-B aircraft planned. We currently have three "A" versions and one "B" version.

One of the major differences between those is the fact one is nuclear hardened. So we will be hardening those and we will also be hardening the force commanders' airborne command posts; EC-135, CINCPAC, CINCLANT.

We are starting major initiatives in mobile command centers. These will be ground mobile, perhaps ship mobile, and other types of mobility centers for communications, command and control which will complement the airborne command and control aircraft and provide endurance and survivability in the event of a protracted conflict.

In the fixed centers like the national military command center we are suggesting the following improvements, such as additional power so that any loss of commercial power can be taken up by emergency power, additional hardening against electromagnetic pulse effects and so on.

We are also looking at other survivable command center ideas such as deep underground basing with perhaps options to put some C3I facilities deep underground.

STRATEGIC COMMUNICATIONS INITIATIVES

- GROUND WAVE EMERGENCY NETWORK (GWEN)
    - -- LOW FREQUENCY: RESISTS NUCLEAR EFFECTS & JAMMING
    - -- MANY NODES: SURVIVABLE/ENDURING
    - -- CONUS WIDE: CONNECTIVITY
    - -- MANY USES: SAC/NCA/FORCES
- NEW ECX AIRCRAFT FOR TACAMO
- MILSTAR EHF COMMUNICATIONS SATELLITE SYSTEM
    - -- EXTREMELY RESISTANT TO JAMMING & NUCLEAR EFFECTS
    - -- NUMEROUS SURVIVABILITY OPTIONS INCORPORATED
    - -- ASSURED CONNECTIVITY: - NCA AND FORCES
        - - FORCE COMMANDERS AND WEAPON SYSTEMS
        - - REPORT BACK
- LF/VLF RECEIVERS ON BOMBERS
- DSCS III PRODUCTION
- ELF FOR COMMUNICATIONS TO SUBMARINES
- THREE ADDITIONAL FLEET COMMUNICATIONS SATELLITES
- RECONSTITUTABLE COMMUNICATIONS CONCEPTS UNDER STUDY

CHART 10

COMMUNICATIONS SYSTEMS

In the communications initiatives—you mentioned MILSTAR and we will talk briefly about that in just a minute—there are a number of new communications initiatives.

The Ground Wave Emergency Network [GWEN] would be an overlay network on top of the commercial land line system that we are so heavily dependent on today. This is a low frequency, like an ordinary radio broadcast tower system, that is immune to nuclear effects and largely immune to jamming, relatively inexpensive for carrying data only and will be used for emergency action messages and other force direction information.

We are asking the Congress to approve starting in 1983 a new aircraft to replace the aging TACAMO fleet with a new airframe called the EC-X.

The MILSTAR EHF communications satellite I will touch on in a minute.

Another initiative is to put VLF and LF receivers on bombers so that we can further assure the bombers receiving the force direction information they need in the event of nuclear attack where other types of communications might be jammed or otherwise disrupted from nuclear effects.

The DSCS III satellite is in production. The first DSCS III launch will be in September of this year and will be launched on an expendable launch vehicle with the IUS.

Another major communications initiative with the Navy is ELF for communications to the submarines, activation of sites in Wisconsin and Michigan, small sites for constant communication to submarines at depth, at speed.

As you noted, we are procuring or asking to procure three additional FleetSat communications satellites. I will show you how that comes into the MilSat complex in just a minute.

We are looking at a number of other reconstitution ideas in communications systems.

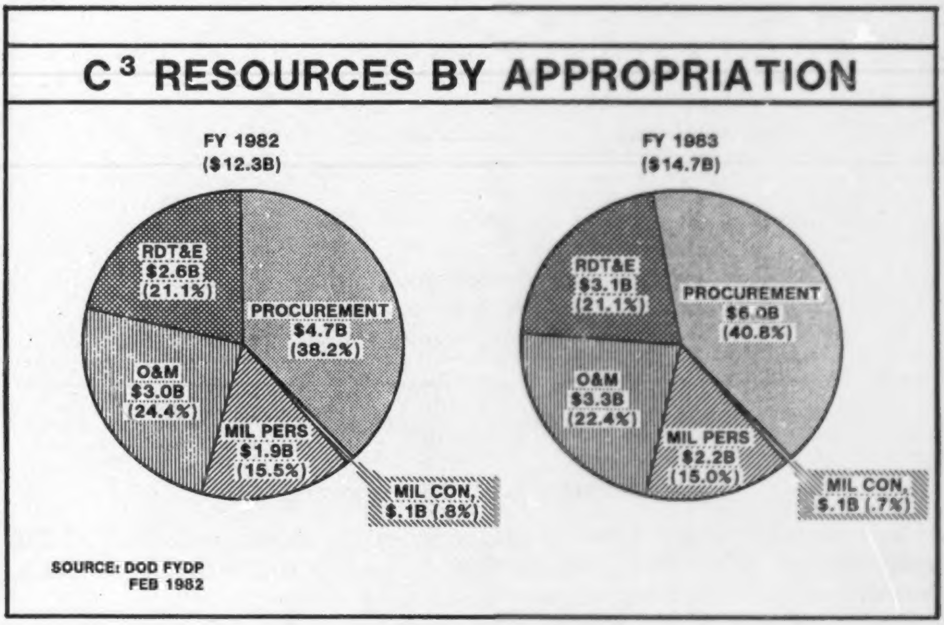
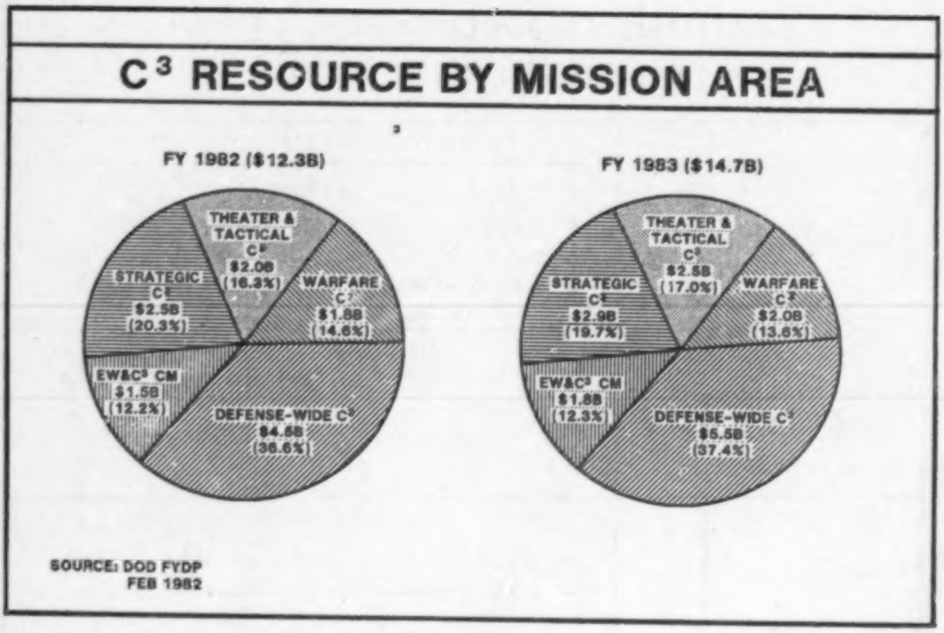


CHART 11

RESOURCE AREA

In the resource area, as you noted, from fiscal 1982 is $12.3 billion for the C3 area we are asking for $14.7 billion in fiscal year 1983.



SOURCE: DOD FYDP
FEB 1982

CHART 12

MISSION PROGRAMS

In the next viewgraph I have it broken out by mission. As you note the strategic area is about $2.9 billion, about 20 percent of the budget. Defensewide C3 is a very large piece of the budget. In this budget area are the communications satellites and also all communications security initiatives as well as the worldwide defense communications system for all the bases, camps, and stations.

CURRENT AND NEAR-TERM MILSATCOM SYSTEM

	USER	BAND SPACE SEGMENT STATUS
WIDEBAND	SHF	• 4 DSCS II OPERATIONAL • 2 DSCS II ON-ORBIT SPARES • 1 NATO III OPERATIONAL +2 SPARES • DSCS III FIRST LAUNCH CY 1982
TACTICAL MOBILE	UHF	• 3 GAPSATS PARTIALLY OPERATIONAL • 4 FLTSATS OPERATIONAL • LEASAT FIRST LAUNCH CY 1984
STRATEGIC	UHF	• AFSATCOM CHANNELS ON FLTSAT • AFSATCOM CHANNELS ON SDS

CHART 13

MILITARY COMMUNICATIONS SATELLITE AREA

Let me talk briefly about the military communications satellite area.

Currently today we have a triad of systems on orbit. We have the wide-band SHF system represented by the six DSCS satellites, four operational and two spares, plus the NATO satellite, so-called NATO-III with spares which are completely interoperational with our DSCS system.

As I noted the first DSCS III launch is in 1982, September specifically. The second type of satellite system is the so-called tactical mobile UHF.

Today we have three GAPSATS on which we are leasing some service. We have four FleetSats operational. The first LEASAT will be shuttle launched in July 1984. The first LEASAT will be delivered to the Cape in December 1983 in case we need it earlier. The fifth FleetSat which was launched on August 6, failed during the launch sequence in that there was a failure of the external shroud on the booster which damaged the satellite.

While the satellite is in synchronous orbit it is unworkable. We currently have only four FleetSats operational.

When we look out to the nineties with the investment we currently have in the UHF satellite world, we believe we need to extend the FleetSat out into the nineties. The FleetSat not only provides UHF worldwide coverage for all the tactical mobile users, but it also carries the AFSATCOM transponder on which is a special strategic communications specifically for the Air Force. The

AFSATCOM is also carried on other satellites such as the satellite data system. This then is the current mix of communications satellites.

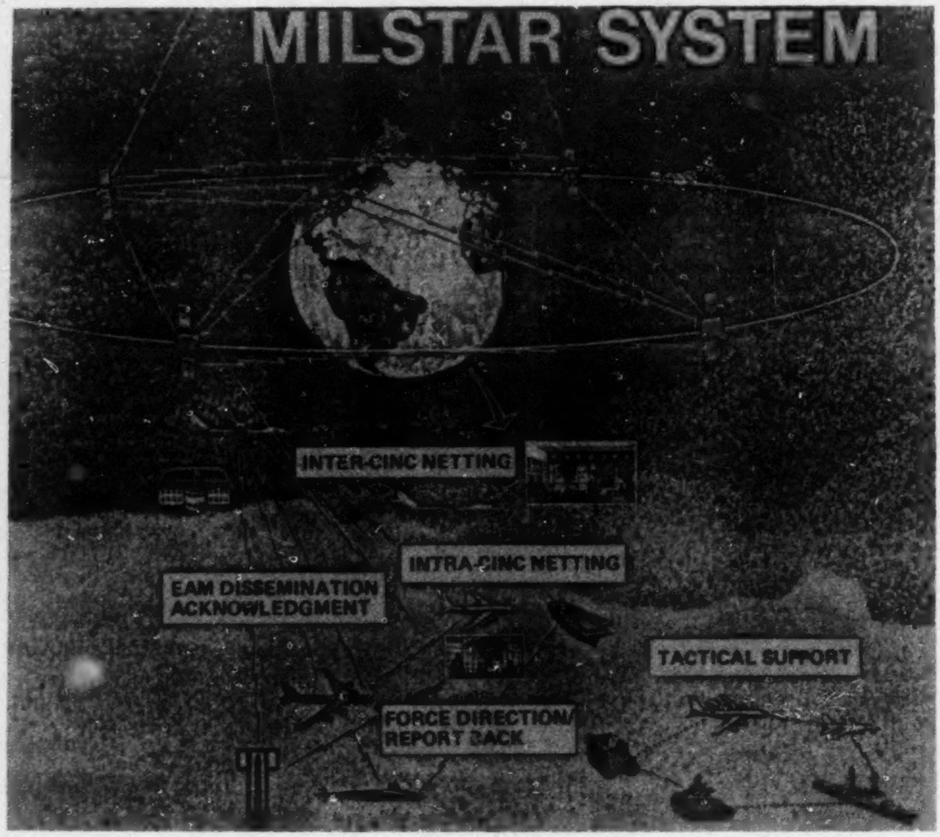

MILSTAR SYSTEM
INTER-CINC NETTING
INTRA-CINC NETTING
EAM DISSEMINATION ACKNOWLEDGMENT
TACTICAL SUPPORT
FORCE DIRECTION/ REPORT BACK

Chart 14

MILSTAR SATELLITE SYSTEM

As you mentioned, what we are planning on doing is moving to a new satellite system called the MILSTAR. Why should we do that? First of all——

Senator Schmitt. Was that FLEETSAT that was damaged a direct ascent to geosynchronous?

Mr. Latham. No, sir. It went into a transfer orbit.

Senator Schmitt. Why did you not go ahead and put it up there?

Mr. Latham. We had some suspicion it was damaged. We did not realize how badly until we got it up to synchronous and tried to deploy the solar panel and the big UHF antenna that swings out. While there are some partial operational capabilities, we discovered after a lot of testing it is unusable.

SHROUD FAILURE

Senator Schmitt. Have you determined why the shroud failed?

Mr. LATHAM. Yes, sir. We believe so. There was a very detailed accident board. The shroud imploded into and impacted on the satellite. A very large piece of shroud actually broke loose.

Senator SCHMITT. Is this a new shroud?

Mr. LATHAM. No, sir. It has been used many, many times. Frankly what they discovered was that in this lot of shrouds there was some quality control problems at the manufacturer. We built a small piece of the shroud and deliberately subjected it to some tests. You could show how it would just tear apart.

Senator SCHMITT. It is really discouraging at this stage of the game that we are having trouble with shrouds.

Mr. LATHAM. It was the quality control program.

Senator SCHMITT. That may explain it. It does not justify it.

Mr. LATHAM. That is right.

Why do we want to move to a MILSTAR system? First it is moving to a frequency range which we do not operate in today. That frequency range provides a number of things we cannot do with these lower frequencies. At the EHF frequency range, 44 GHz uplink and 20 GHz downlink we can get enough bandwidth to provide very robust antijam.

Our projection is that this system will be very jam resistant, one can postulate, for the foreseeable future.

PHASEOUT OF OLDER SATELLITE SYSTEMS

Senator STEVENS. What are you going to do with all the other systems?

Mr. LATHAM. We are going to phase some of those out. SDS phases out with vehicle No. 6. FleetSat phases out after vehicle No. 8. This satellite (MILSTAR) then will take over the strategic mobile user requirements serviced today by the FleetSat communication satellites and also the AFSAT, COMSAT light terminals, and systems that are piggyback.

As we phase this (MILSTAR) in, it will allow us to phase out some of the other communications satellite systems. We will continue DSCS for the foreseeable future. We will continue the LEASAT probably into the 1990's because we have a large investment in UHF terminals and it is very inexpensive to carry electronic mail peacetime with UHF type satellites. However, this MILSTAR system provides, as I mentioned, very robust AJ. With the very high frequency you can have very, very small antennas so we can actually put a system like this with a terminal in a submarine. We can put a terminal in a small vehicle so that the land forces can have that availability. These frequencies make it very difficult to intercept and tell whether you are transmitting or not.

Senator STEVENS. You have $15 billion in C3I now?

Mr. LATHAM. Yes, sir, for fiscal year 1983.

Senator STEVENS. What is it going to cost to run that on an annual basis?

Mr. LATHAM. I don't have an annual cost for this yet. We are still in definition of what the satellite configuration will look like.

Let me mention about that $15 billion : $6 billion of that is O. & M. and Milpers. We have a lot of people charged to this C3 area. We are taking a look whether or not some economics can't be realized there. It (MILSTAR) is not going to be a cheap system. We are planning on four satellites synchronous and three in elliptic orbit and one on-orbit spare. There are a number of features to be put into this satellite that have never been done before to make it very survivable. So that even under the most stringent cases we can think of, we believe we can operate a significant portion of the constellation unless he goes to very extraordinary techniques to get it out. We will be under full-scale engineering development on this in March of 1983.

Senator **Stevens**. How soon will we move to it? You have a request here for additional existing program satellites, don't you?

REPROGRAMING ACTION FOR GPS

Mr. **Latham**. We are coming in with a reprograming action on the GPS satellite for fiscal 1982 for approximately $20 million which I don't believe has come over here yet.

On this satellite, particularly the MILSTAR, the Senate Armed Services Subcommittee, Senator Warner's committee, suggested that we should plus the 1983 request by approximately $50 million for MILSTAR in order to guarantee the launch date we would like to make, provide schedule assurance and risk reduction.

Senator **Schmitt**. Is this $20 million for GPS over and above what was appropriated last year?

Mr. **Latham**. Yes, sir.

Senator **Schmitt**. Have you spent what was appropriated last year yet?

Mr. **Latham**. Yes, sir, we have. What we are trying to do, as you know, is to start into production on the GPS system. That was not appropriated last year. For the production buy, the satellites specifically, you will remember there was, I forget the exact amount, but that was denied last year. We were given R.D.T. & E., but no production money.

Senator **Schmitt**. You are spending the R.D.T. & E.?

Mr. **Latham**. Yes, sir, absolutely.

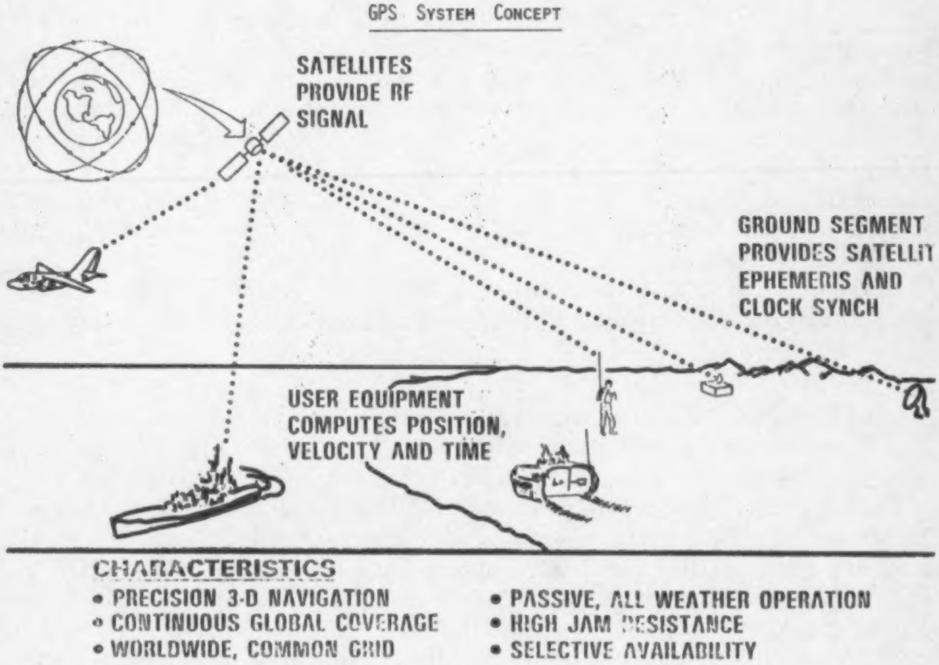

GPS System Concept
SATELLITES PROVIDE RF SIGNAL
GROUND SEGMENT PROVIDES SATELLIT EPHEMERIS AND CLOCK SYNCH
USER EQUIPMENT COMPUTES POSITION, VELOCITY AND TIME
CHARACTERISTICS
• PRECISION 3-D NAVIGATION
• CONTINUOUS GLOBAL COVERAGE
• WORLDWIDE, COMMON GRID
• PASSIVE, ALL WEATHER OPERATION
• HIGH JAM RESISTANCE
• SELECTIVE AVAILABILITY

CHART 15

GPS–IONDS

Let me talk about GPS–IONDS. As you note, it is a system which will have 18 satellites in orbit by 1988. It will provide an electronic signal—in fact, two different signals—to the users such as people with small terminals all the way up to very major users such as surface combatants or aircraft.

It provides worldwide three-diminsional navigation information and precise timing 24 hours a day in all weather on board the GPS. Also, it provides treaty monitoring in case of any accidental detonations (or deliberate) of some other country.

We view this as a very vital addition to the DOD's capability. Today, we cannot get the kind of accuracy that this system will provide, nor is there any other possible satellite for the IONDS' package. So this enjoys very high support by the Secretary and services.

We believe we should move forward with this as quickly as possible.

Senator SCHMITT. Are you doing your homework now with the House to make sure they believe that statement?

Mr. LATHAM. Yes, sir. I testified over there all day yesterday and in March to the House Armed Services Committee, and I believe we now have the House Armed Services Committee supporting it, that they will support it this year.

GLOBAL POSITIONING SYSTEM
PROGRAM ACQUISITION

- **FUNDING:**

	FY 82	FY 83	FY 84
RDTE	$199.4M	174.6M	230.6M
PROCUREMENT	0	$102.0M	$154.4M
MILCON	0	0	$ 13.5M
O&M	0	$ .3M	$ 1.2M

- **FY 83 PROGRAM:**
  - CONTINUE FULL SCALE DEVELOPMENT
    - SATELLITES, GROUND CONTROL SEGMENT, USER EQUIPMENT
  - PROCURE OPERATIONAL SATELLITES
- **MILESTONES:**
  - DSARCS

I	DEC 73
II	MAY 79
III	MAY 84
• 18 SATELLITE CONSTELLATION OPERATIONAL (WORLDWIDE, 3-D CAPABILITY)	1988

CHART 16

PROCUREMENT OF OPERATIONAL SATELLITES

We are asking for these moneys in fiscal 1983 as noted here. This starts the major procurement of the operational satellites. In fact, interestingly we have a firm fixed-price proposal from the satellite producer which, if we can get a multiyear procurement on the first 28 satellites, we can save $300 million.

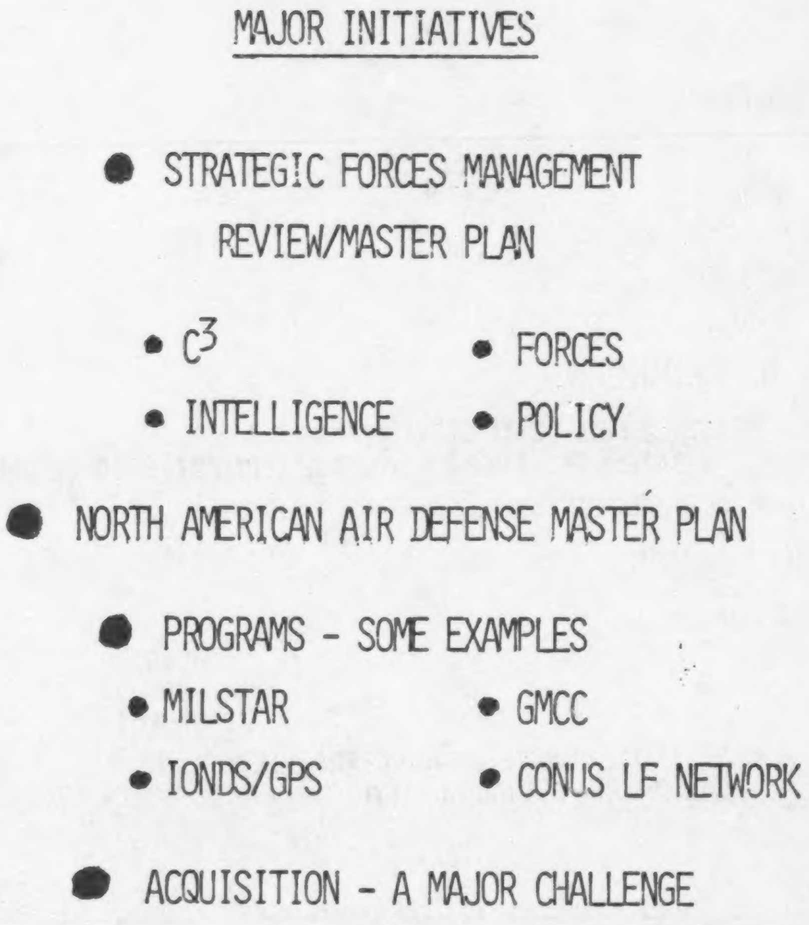
Senator SCHMITT. What is the constraint on getting that? Are we the constraint?

Mr. LATHAM. Yes, sir. It will be a congressional problem.

Senator SCHMITT. Does your request include a multi-year procurement?

Mr. LATHAM. Yes, sir.

Senator SCHMITT. No question, that is the way to do it.



MAJOR INITIATIVES

- STRATEGIC FORCES MANAGEMENT REVIEW/MASTER PLAN
  - C^3
  - FORCES
  - INTELLIGENCE
  - POLICY
- NORTH AMERICAN AIR DEFENSE MASTER PLAN
- PROGRAMS - SOME EXAMPLES
  - MILSTAR
  - GMCC
  - IONDS/GPS
  - CONUS LF NETWORK
- ACQUISITION - A MAJOR CHALLENGE

Chart 17

MASTER PLAN

Mr. **Latham**. Finally, sir, just to give you some other ideas of what is going on, we have underway a major planning effort within the DOD that was requested by the President called the Strategic Weapons Employment and Acquisition Master Plan, sometimes called the Master Plan.

It involves these four working groups as noted here. It is rapidly coming together. We owe a report to the President on July 1. It addresses the long-term strategic plan for forces C3 and I as it measures up to policy. That is a very high-level effort and moving rapidly.

Senator **Schmitt**. That is coordinated with the space policy development?

Mr. **Latham**. Yes, sir, it certainly is. We turned in to the Congress the North American Air Defense Master Plan. That is phase 1. We owe you a phase 2. The first phase plan only addresses the peacetime crisis system and does not tell you exactly in any detail at all how we would build an enduring North American air defense system which we believe is vital in a protracted case. We owe you that this summer.

OTH RADAR DEPLOYMENT

Senator SCHMITT. That includes southern border protection?

Mr. LATHAM. Yes. This would deploy an OTH radar looking south. That would be on line in approximately 1988. In addition, we will deploy OTH-B east and west as well and two PAVE PAWS radars looking southwest and southeast. The Air Defense Plan includes procuring some additional AWACS aircraft that we will use in random patrols plus the purchase of six new squadrons of F-15 aircraft.

This viewgraph outlines some other programs that we are pursuing. I touched briefly on MILSTAR and GPS programs. The ground mobile command capability is a major objective to provide alternate survivable enduring command, control and communications capability in a mobile configuration for the NCA as well as the nuclear CINCS and JCS and others.

We are also going to start a CONUS LF network to overlay the commercial system. In doing all of this, as you know, acquisition is a major challenge because unlike buying missiles or tanks, C3 involves procedures and people plus a how to factor in and how you configure the system and how you operate it. You don't go out and buy a C3 system as you do other systems. It will take us some time.

LASER COMMUNICATIONS

Senator SCHMITT. You did not mention laser communications one time. Is there any basic R.D.T. & E. work going on in lasers?

Mr. LATHAM. Yes, sir. In fact we will be deploying laser cross links on some of our space systems by the mid-eighties and making use of lasers for communications of data between satellites. We have some other lower level, in terms of where they are, laser communications programs for possible tactical use.

I should mention perhaps that you are alluding to the blue-green laser?

Senator SCHMITT. I am alluding to laser communications in general and to the problems that are developing in international administrative radio conferences in frequency allocations including a whole range of problems that may develop in the future. Even if they don't develop there are other arguments for aggressively pursuing laser communications.

Mr. LATHAM. Yes, sir.

Senator SCHMITT. But it has some other implications in terms of satellite payload weight that in turn impact some other decisions that need to be made very shortly.

Mr. LATHAM. Yes, sir.

LASER R. & D. WORK

Senator SCHMITT. Could you provide us for the record a summary of the work being done in laser research and development as well as plans for deployment of laser capabilties?

Mr. LATHAM. Yes, sir, we will be glad to.

[The information follows:]

WORK BEING DONE IN LASER RESEARCH AND DEVELOPMENT

Laser Communications (LASERCOM) technology development and system application studies are conducted in PE 63431F Advanced Space Communications. This program element develops and demonstrates technologies, techniques and concepts for future generation military satellite communications (MILSATCOM) payloads and associated terminals for Air Force airborne applications. [Deleted.]

The LASERCOM technology has been developed by the Air Force over the past ten years. This development has included laboratory testing, field testing at White Sands, New Mexico, and airborne testing. The airborne tests were conducted using a full one gigabit per second laser link between aircraft and a ground receive station. [Deleted.]

A LASERCOM payload is being built to fly on the P80-1 (TEAL RUBY) spacecraft (Satellite Test Program/DARPA mission) that is planned for launch in 1984. This payload and associated ground/airborne test equipment will demonstrate the acquisition and tracking procedures of a future operational system. A terminal [deleted] is being developed to participate in the TEAL RUBY orbital test phase. Development will be initiated on a microwave ground terminal to receive the downlink from the satellite LASERCOM payload. Advanced LASERCOM technologies will also be developed and reliability testing conducted on key LASERCOM components.

[Deleted.]

BLUE-GREEN LASERS

Senator SCHMITT. Now you can talk about blue-green lasers.

Mr. LATHAM. That usually comes up.

Senator SCHMITT. I know it does, but I don't want this conversation to indicate that that is the only concern that I have or I believe that the subcommittee has.

Mr. LATHAM. Yes, sir, that is a good point.

Senator SCHMITT. That is just one aspect of the potential for laser communications.

Mr. LATHAM. Yes, sir.

We do have the blue-green laser program being pursued by DARPA with the Navy participating. That is a long-range technology program at this point. It is not clear yet how that will turn out. We have a schedule laid out, and 1984 is the decision date whether to go forward with one or another of the two major concepts—if either one.

At the same time we are pursuing a tactical communications initiative which will put lasers on aircraft, such as the P3, to communicate with submarines. That could be an initiative that would reach maturity in the mid-eighties.

SYSTEM DELAYS

Senator SCHMITT. There has been some suggestion that by bringing DARPA into this group rather than having the program continue as principally a Navy development program that it builds in a significant delay in both that decision and final acquisition of the system.

How do you respond to those acquisitions?

Dr. COOPER. Could I answer that question?

There are two views on that. One is that when you have DARPA doing a high-risk, high-technology program of that sort it speeds up the time when that technology program of that sort it speeds up the time when that technology is available to the forces.

There is the other view that when you have DARPA do a high-risk, high-technology program there is the added time required to transfer that technology to the service. I think we have both of those bases covered in this program in that we have a very close relationship with the Navy and DARPA working on the blue-green laser program and we have a very aggressive program.

That is, we have a lot of parallel paths being pursued to cover all the risks. We have a number of options and alternatives being pursued and we have some near-term payoff with this aircraft program. So I think there is a high probability that we will get the fastest-based program possible out of this approach and also that the Navy will be there to pick up the results and run with them when they have been demonstrated.

LASER APPLICATION TO AIRCRAFT

Senator **Schmitt**. Are any of the other services interested in the blue-green laser?

Dr. **Cooper**. Yes, sir, the Air Force does have some interest for possible relay of messages to the bomber force in the strategic context.

Senator **Schmitt**. Is there any danger of building an F-111 rather than a specialized communication system to meet specifically the Navy's requirements? Is there danger when you shift to DARPA that you in fact start to get too many requirements put on a system?

Dr. **Cooper**. I don't believe so. We are pursuing two specific lines of action now.

SUBMARINE LASER COMMUNICATION

One is the tactical submarine laser communication from aircraft. That is a very specific mission. It has one specific purpose. That is to provide battle group commanders and the fleet commanders direct access to the submarines through an airborne relay and then we have this more general program, the strategic application potentially with a satellite involved which is very general and could be used in a wide variety of circumstances, but particularly the design and the objectives and specifications that we would have for that system would be related to the strategic submarine communication problem.

So I don't think we are pursuing the general system for someone that will not go anywhere. I think we are vectored in on the right key problems that have very high payoff and we are working very rapidly toward saving those objectives.

NEW INITIATIVES ON ENGINEERING DEVELOPMENT PROGRAMS

Senator **Schmitt**. Dr. Cooper, have there been any specific initiatives undertaken in the last 12 to 18 months to improve the institutional aspects of your engineering development programs on new weapons and communications systems so that at the end of that period there is a firm definition of what it is you want to buy and that we do not have significant alterations in what you want to buy as the procurement process goes forward?

I think you will admit that has been a major problem for the last decade. There has been a deterioration in the firmness of the management of our various procurement programs so that lead times have become much longer than they would be or that is really prudent to have when you consider the threats that we are facing.

Dr. **Cooper**. Yes, there has been considerable work done over the past year. Some of that work manifested is in the Carlucci procurement initiatives and in the new approach we are taking to the DSARC processes that I think will directly address some of the problems that you brought up.

I think that the idea of streamlining our procurements substantially moving to a smaller number of key milestones early in these programs is going to speed up the process of weapon acquisition and bring us more rapidly to that point where we can clearly specify what system performance objectives we wish to have in systems that are being procured.

So I think these measures will address the problems that you so rightly bring up here.

SPACE AND SPACE-RELATED ACTIVITIES

Senator **Schmitt**. Another basic institutional problem in my mind is the DOD organization to handle space and space-related activities. There seems to be, when one looks at various versions of organizational charts in this area, a proliferation of boxes without any clear lines of coordination between them, and stories of noncoordination or miscoordination abound in the Department of Defense, specifically between the Department of Defense and NASA.

One example frequently cited to me is that there seems to be an excess of DOD personnel showing up in every planning session that has to do with space.

Would you care to comment on what you are doing to try to create a centralized coordination of space-related projects?

Dr. **Cooper**. Yes, we recognize that there is a problem with respect to coordination of space activities. We have taken a number of steps to try and clear up some of these problems in the recent past. There is further planning and discussion going on in Defense now to try to further streamline our space organizational system in Defense.

Recently in the Office of the Secretary there has been a redefinition of the charters for policy and for reserach and engineering in terms of the responsibilities there and a new focus for space has been created in the Office of the Under Secretary for Research and Engineering to try and draw together the broad space research activities that lead to the space systems that we are procuring.

Now you know that the principal coordinating activity that we have with the National Aeronautics and Space Administration Board which involves the Under Secretary for Research and Engineering, my boss, Dr. Richard DeLauer and Deputy Assistant of NASA who is now Dr. Hans Mark. Those two individuals are the single individuals that coordinate both space and aeronautics between NASA and DOD and a number of subcommittees of that Board deal with specific problems in aeronautics and space.

It is true that particular mechanism which was worked through the recent past that much of the coordination between Defense and NASA occurs. We think that that body is effective and we are working to strengthen it.

WORKING LEVEL PROBLEMS

Senator Schmitt. The problems appear to be more at the working level. There does not seem to be any coordination between, say, what the Systems Command does in direct cooperation with NASA on a project-by-project basis and these other structures that you are creating at the Secretary's level to provide coordination.

Would you care to comment on that?

Dr. Cooper. There has been some reorganization at the staff level in the Air Force to try and coordinate these activities better. There is a recognition that we are moving into an era when the Space Shuttle is becoming operational.

So an operational focus on the problems of operations is needed to be created in the Air Force and an Air Force staff position has been created to focus attention on operations in the Air Force. So, we have both the Research Director on the staff of the Air Force and now an Operations Director.

We are hopeful that by clearly defining the roles of these two folks and having them focus in on the major problems of research and development separately from operations, that we can better coordinate the activities with NASA particularly in the Space Shuttle program.

ORGANIZATIONAL CHART

Senator Schmitt. Can you provide us with an organizational chart with some explanation of how you envision the structure currently and where you think you are headed in terms of structure?

We won't hold you to it, but we would like to see where you are heading in terms of space.

Dr. Cooper. We will be happy to provide that for the record.

Senator Schmitt. These are with small letters, not capital letters, but a space command and control organization.

Dr. Cooper. We will certainly do that.

[The information follows:]

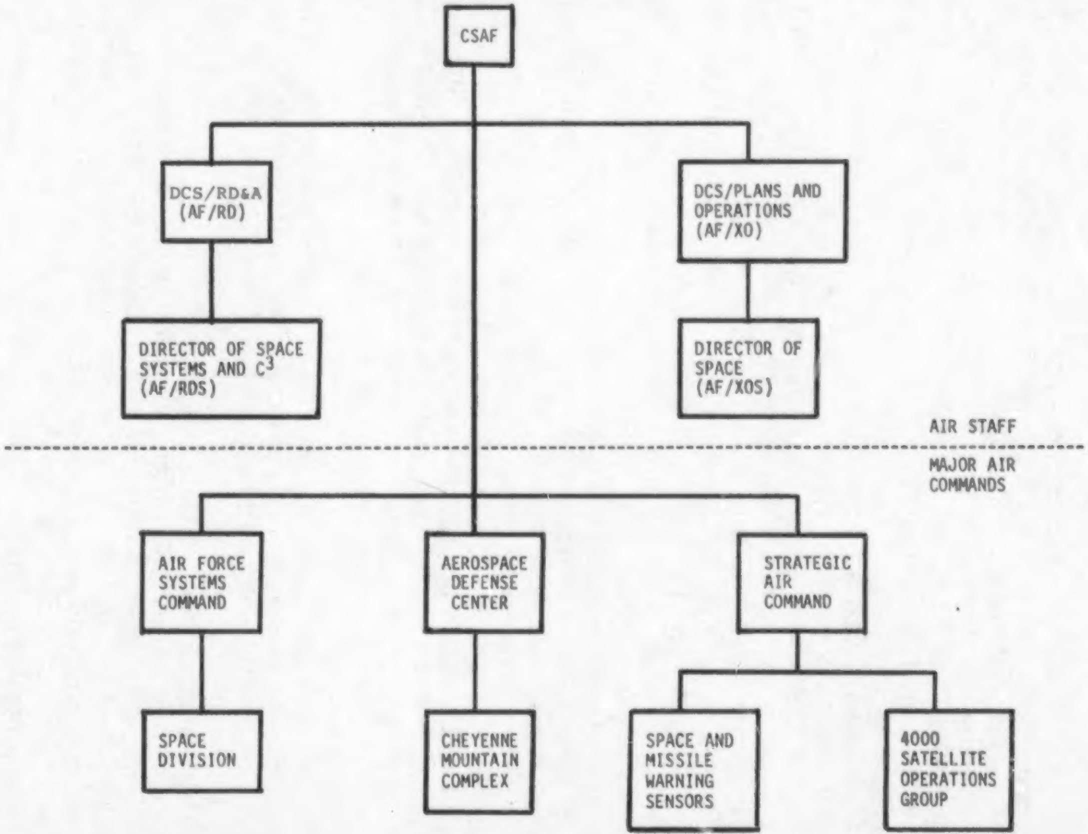
Comment on Structure for Space Activities

The current Air Force organization for space is shown on the attached chart. On the Air Staff, there are two directorates primarily involved in space activities. The Director of Space Systems and C^3 under the Deputy Chief of Staff-Research, Development and Acquisition manages research, development and acquisition for Air Force space systems. The Director of Space under the Deputy Chief of Staff/Plans and Operations is responsible for Air Force space plans and operations. No near-term changes in this Air Staff organization are planned.

Several major air commands are currently involved in space activities. Air Force Systems Command performs the research, development and acquisition of space systems and conducts launch and on-orbit operations. The Aerospace Defense Center manages the Cheyenne Mountain Complex which is the operationsal hub of space defense activities. Strategic Air Command manages and operates space and missile warning sensors and, under the 4000th Satellite Operations Group, operates the Defense Meteorological Satellite Program.

The Air Force is currently examining organizational changes at the major air commands to improve management of space activities. We are heading toward a structure which would consolidate more of the operational activities under an operational command—perhaps called a "Space Command." A key feature of any new structure would be a strengthening of the interface between the new operating command and the development command.

AIR FORCE
CURRENT ORGANIZATION FOR SPACE


CSAF
DCS/RD&A (AF/RD)
DIRECTOR OF SPACE SYSTEMS AND C³ (AF/RDS)
DCS/PLANS AND OPERATIONS (AF/XO)
DIRECTOR OF SPACE (AF/XOS)
AIR STAFF
MAJOR AIR COMMANDS
AIR FORCE SYSTEMS COMMAND
SPACE DIVISION
AEROSPACE DEFENSE CENTER
CHEYENNE MOUNTAIN COMPLEX
STRATEGIC AIR COMMAND
SPACE AND MISSILE WARNING SENSORS
4000 SATELLITE OPERATIONS GROUP

NATIONAL SPACE POLICY

Senator **Schmitt**. With respect to that, as you indicated, the Department of Defense is in the process of developing its contribution to an overall national space policy.

Is there any intention to involve the Congress in those discussions before the President articulates that space policy?

Sometimes it is helpful to bounce some ideas off people up here, you know?

Dr. **Cooper**. Yes; we do not yet have a draft document or a basic document that we can use as a point of discussion. I don't know what Dr. Keyworth's specific plans are with respect to exactly how he is going to approach the Congress prior to publishing any——

Senator **Schmitt**. It is in his hands, not in yours?

Dr. **Cooper**. That is correct. We have been working closely with Dr. Keyworth and have given defense inputs.

We have also made certain recommendations about how this coordination activity should proceed. I am sure that some initial strawman will be ready for discussion very shortly.

Senator **Schmitt**. Well, we love to talk about straw persons up here. Maybe we can be of some help.

With one exception, that is, of the space-based laser, the presentation you made this morning strongly suggested that the Department of Defense's orientation toward space is related to space contributing to do the job you have to do here on Earth and in the atmosphere and in the oceans better rather than oriented toward also developing unique aspects of the space environment, toward keeping peace.

Is that a misimpression or would you agree there is still some reluctance on the part of the Department of Defense to consider space as a new environment in which it has its own unique capability for keeping peace?

Dr. **Cooper**. I believe that Defense is taking a much more liberal view of how to use the unique capabilities of our space systems to insure the peace, not only for the automated space craft that we have relied on so heavily over the past decade, but also looking toward the new manned space capabilities that are inherent in the Shuttle, in the new proposals by NASA to experiment with a manned space platform.

We have just recently taken a new look at what military potential there is for the manned operation of the Shuttle and a number of new ideas have been generated about how this unique capability could be used by military services to help perform the essential missions that they have.

SOVIET VIEW OF MILITARY APPLICABILITY TO SPACE

Senator **Schmitt**. Is it your impression that the Soviets have a more liberal view than we do with respect to the unique capability of space relative to military activities.

Dr. **Cooper**. Well, I believe the Soviets have been very inventive in using space to meet their particular purposes. They have a wide variety of space systems that they rely on. I believe that they have even a wider variety of activities going on in space than we do in the sense that if you look at it mission by mission you will find certain missions which they have instituted in space where we have no counterparts today.

Examples are the radar ocean surveillance satellites that they have and also the antisatellite system that they have. We have as yet no counterparts to either one of these. There are other missions which we believe they perform in space which have no counterpart as well.

So I think they have been very inventive. They generally use space to meet their particular needs. So far we have used space to meet our needs satisfactorily, but I think we are becoming much more enthusiastic about the idea of using space because in many cases it can be much, much more cost-effective than other ways of performing similar missions.

ORBITER NEEDS

Senator SCHMITT. Do you think four orbiters will be enough to satisfy the perceived needs and probable needs of the Department of Defense?

Dr. COOPER. I believe that the Nation will turn out to need more than four orbiters. I believe that the currently understood projected space activity throughout this decade will probably be realized and then some. If that is the case, probably more than four orbiters will be required.

Certainly the option to procure a fifth orbiter should be retained for as long as we can until we can clearly see the need for that fifth orbiter. I believe that Defense would support the procurement of a fifth orbiter by NASA.

Senator SCHMITT. Is it safe to say though that the Department of Defense believes if they absolutely need to have orbiter capability that they will have it with the four-orbiter fleet because you can usurp other activities?

Dr. COOPER. I think the attitude and the position that Defense has taken on this issue is that there is no way of separating the military launch capability from the civilian and other launch capabilities required by the country in this unified space transportation system that we have. You really have to look at the whole picture; and looking at that whole picture as best we understand it now, one can at least see ways where four orbiters could satisfy all the launch requirements through the decade.

I believe there is a feeling of uncertainty about that, that is, that perhaps a miscalculation as to how rapidly we can turn the vehicles around on the ground. There may be operational problems that arise that would cause us to really need more than four.

So I think we view the procurement of a fifth orbiter as certainly a prudent backup capability that we should acquire as a nation to meet all of our needs and particularly to meet defense needs.

Senator SCHMITT. When you say require as a nation I presume you mean that you presume the Nation ought to pay for it and not DOD?

Dr. COOPER. Where the funds come from is——

Senator SCHMITT. Be careful now.

Dr. COOPER [continuing]. Is of little consequence as far as the Nation is concerned. That is a national requirement.

Senator SCHMITT. It is not of little consequence up here when you have to deal with separate bills, believe me.

Dr. COOPER. I understand the political problems.

Senator SCHMITT. I have a very strong impression that the reason DOD seems so sanguine about the whole thing, the number of orbiters, is that they are in the back of their minds absolutely convinced if they need another orbiter they will get it. I agree with that. It already is our national policy to all intents and purposes. That means that put other types of missions also of significant national interests in jeopardy.

It also undercuts some of the marketability of the Space Shuttle. When you talk about a four-orbiter fleet you are really talking more than likely a three-orbiter fleet. If you get operational, one of these orbiters for some period of time is probably going to be down. With 24 flights a year, which is the current projected goal, the chances of damaging a landing gear or something like that are reasonably high. Even though astronauts, of course, never have a hard landing anywhere, something else might get in the way, an armadillo or crocodile.

I hope that you will continue in your space policy development to rethink this. I don't think it is at all safe politically or practically for DOD to assume that there are always going to be four orbiters available any time they say we need them.

PRIVATE SECTOR PURCHASE OF FIFTH ORBITER

Have you looked at the proposal for private sector purchase of a fifth orbiter?

Dr. COOPER. Yes; we have been following that very closely.

Senator SCHMITT. Have you developed any comments about the practicality of that? Are there any constraints you see in the proposal as you understand it that DOD would have any problems with?

Dr. COOPER. Yes, I believe that Defense has the view that for the control of defense missions the Defense Space Authority will have to have very close control of the space launch vehicles for military missions. So, there would be constraints that would be embodied——

Senator SCHMITT. I guess you have not read the proposal because the proposal covers that.

Dr. COOPER. I have read the proposal.

Senator SCHMITT. Merely for financing the purchase of the Orbiter in return for commercial and international marketing rights.

Dr. COOPER. I understand that. I just wanted to say that the only concern we would have about that really is the concern about the particular mechanisms for the control of military space launches. To the extent that that can be taken care of, that concern can be taken care of by the proposal, I think that we have no particular problem with the proposal which has been made.

SPACE POLICY DEVELOPMENT

Senator SCHMITT. Will you provide for our record a diagrammatic, and any text you wish to add to it, representation of how the various inputs are being gathered and integrated into the space policy development for Dr. Keyworth?

Dr. **Cooper**. Yes, indeed, we certainly can provide that. We can tell you what we have done.

Senator **Schmitt**.And how the various services are involved, what portions of the various services.

Dr. **Cooper**. Certainly.

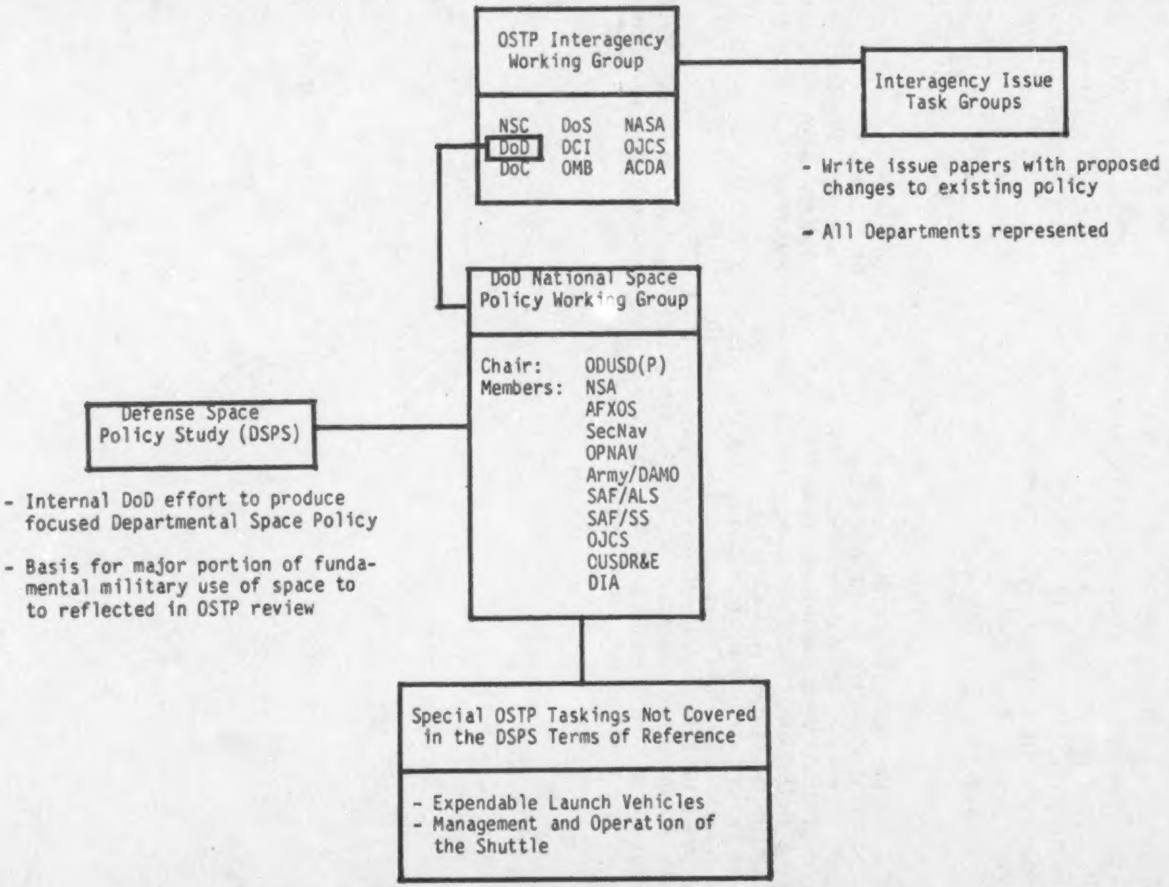
[The information follows:]

DEFENSE SPACE POLICY STUDY

The Defense Space Policy Study was the result of a desire to provide a focused and coherent space policy within the DoD. At the same time, the NSC and OSTP decided to review National Space Policy for possible new direction. The DoD and National efforts were not initially connected. However, in order to have maximum impact, DoD realized that the timing of the Defense study was required to be coincident with that of the National review.

The Defense study is not intended to be a report to the OSTP. On the other hand, it has been successful in focusing and establishing the DoD frame of reference for expressing the fundamental military use of space in the OSTP effort.

The Services, Defense Agencies and the OJCS have participated in the OSTP review through an internal DoD Working Group. The attached diagram indicates the interrelationships between the OSTP and DoD efforts.


OSTP Interagency Working Group
NSC DoS NASA
DoD DCI OJCS
DoC OMB ACDA
Interagency Issue Task Groups
DoD National Space Policy Working Group
Chair: ODUSD(P)
Members: NSA
AFXOS
SecNav
OPNAV
Army/DAMO
SAF/ALS
SAF/SS
OJCS
OUSDR&E
DIA
Defense Space Policy Study (DSPS)
Special OSTP Taskings Not Covered in the DSPS Terms of Reference
- Expendable Launch Vehicles
- Management and Operation of the Shuttle

- Write issue papers with proposed changes to existing policy

- All Departments represented

- Internal DoD effort to produce focused Departmental Space Policy

- Basis for major portion of fundamental military use of space to to reflected in OSTP review

DIRECTION OF NATIONAL SPACE POLICY

Senator SCHMITT. Do you have any indications now that the concerns and requirements of the Department of Defense will not be met within the framework of a national space policy?

Dr. COOPER. Pardon me?

Senator SCHMITT. I am sorry. Are you satisfied that the concerns and requirements of the Department of Defense will be met within the framework of the policy which is being developed for space?

Dr. COOPER. That policy, of course, is not complete as yet, the formulation of policy.

Senator SCHMITT. I am asking for your impressions now because we have heard some horror stories coming out of the space policy development environment, shall we say, that sound like internal coordination is very difficult and it is hard to pin down just exactly where we are heading.

Dr. COOPER. I believe that we have had adequate inputs to the formulation of the national policy and the preliminary indications that I have had of how that policy is being developed and proceeding does not give Defense any great concerns.

As a matter of fact, as late as the day before yesterday on a flight back from Boston with Dr. Keyworth and Dr. Reece on his staff we had a chance to discuss the progress of the space policy. I am satisfied that things are moving along well and that Defense's essential interests are being served in that formulation.

Senator SCHMITT. Some people who talk are the last ones to know that coordination at somewhat lower level is the problem. So I hope you will keep more than a weather eye on that process.

Dr. COOPER. We certainly well do that.

ANNUAL LAUNCH RATE FOR SPACE SHUTTLE

Senator SCHMITT. Do you think that NASA can make a 24-flight-per-year launch rate with the four Orbiters and with their current plan for operational support for those Orbiters?

Dr. COOPER. I believe that someday when the kinks have been ironed out of the operation of the Space Shuttle that we will be able to get 24 flights off in a year with 4 Orbiters. I think though that you have to take into account the fact that launch operations are always subject to change. I know that during the time that I was at the Goddard Space Flight Center and we launched about 40 objects in 4-year period of time into space with the Delta launch vehicle that there could not have been more than 10 percent of those launches that went off as planned on time. There were always shiftings and changes in the launch picture. It wasn't really possible to make the number of launches each year that we planned.

So, we always overplanned. That is, there were always more launches planned than could be accommodated.

Now the reasons for that have to do both with payloads and with the launch vehicle. As you well know, there are uncertainties about arrival of the payload and launch vehicle at the pad at the same time and getting them both to work and getting them off on time.

So typically we may plan 24 launches a year and we may perhaps not achieve that either for payload reasons or for launch vehicle reasons.

DEPARTMENT ASSESSMENT ON TURNAROUND TIME

Senator SCHMITT. Is the Department making independent assessments about turnaround time, readiness, utilization?

Dr. COOPER. Yes. As a matter of fact, we are doing that both for the operations at KSC, looking at the realism associated with that, and also with respect to the development of the Vandenberg launch facility we are looking very carefully at the turnaround times and the flow, the processing of payloads at Vandenberg.

An understanding of this is key to an understanding of how vital a fifth Orbiter may be to the Nation's needs.

Senator SCHMITT. At this time do those evaluations of various operational parameters differ greatly from NASA's published projections?

Dr. COOPER. I don't believe we have any essential differences with NASA over the estimates that are being made by NASA now on the turnaround time. I think that there is a recognition on both sides that there is a good deal of uncertainty about the estimates that are being made about turnaround time.

COST OF SPACE SHUTTLE OPERATION

Senator SCHMITT. It has been stated to me that 95 percent of the cost of the operation of the Space Shuttle occurs between landing and launch.

Do you agree with that estimate and has DOD made any recommendations to NASA as to how significant savings might be made in that?

Dr. COOPER. I don't know the accuracy of that apportionment of the cost, but I would suspect that it certainly is a very high percentage of the cost.

Senator SCHMITT. Is that because DOD gets a favorable cost and you don't have to worry about the cost of launches?

Dr. COOPER. No, no. It is just that the processing and the apportionment of cost is still a great uncertainty. We are still in an experimental period with the Shuttle. I think until we get into routine operations it is not going to be clear exactly where the large elements of cost are and which of the elements of the operation should be attacked for cost reduction purposes.

REVISIONS OF PRICING POLICY

Senator SCHMITT. I understand NASA and the Department of Defense are currently negotiating revisions to the pricing policy between the two agencies for Shuttle launches. Is that correct?

Dr. COOPER. That is correct.

Senator SCHMITT. Is that pricing policy going to be based on the same cost structure that will be used to develop a commercial and international pricing policy?

I am not saying they will be the same, but the same facts will be used to develop that? DOD is going to pay their fair share of launch cost?

Dr. **Cooper**. That policy is under review now. It is hard to say exactly how it will come out. Clearly the previous arrangement that was made for reimbursement of NASA for the launch of defense satellites was unrealistic. It was based on estimates that were done at a time when the real cost of the launch operations was not estimatable. It was made at the time when the economy was in an entirely different situation than we find it today and the prospect of the future.

So, it is important to reassess that and to normalize it, that is to put the reimbursement policy for defense into a more realistic framework. Exactly how that will come out is subject to the ongoing negotiations.

Senator **Schmitt**. When do you expect the negotiations to be complete?

Dr. **Cooper**. I would expect the negotiations will be complete sometime this summer. We are very close to an understanding on that reimbursement policy now.

As you know, in the past launch operations by NASA and Defense have used certain of the facilities mutually. For instance, eastern test range support of NASA launches has been done at no cost to NASA and the support of certain NASA facilities has been done for defense launches at no cost.

I think the basis for the previous so-called good deal that has been given to each of the organizations for launches of the other payloads was the shared facilities so that it would not be necessary to exchange funds for launch support.

I think that the picture has completely changed since we moved away from the expendables and into the Shuttle and so it is clearly time to reassess the bases upon which those reimbursement costs were founded and to make sure that they are normalized realistically, to put them closer to a competitive situation.

REDUCTION IN PAYLOAD LAUNCHES FROM VANDENBERG

Senator **Schmitt**. One of the major changes is that NASA, I guess, now plans to launch far fewer payloads from Vandenberg than in the original agreement. Is that correct?

Dr. **Cooper**. Yes. But as I said before, launch plans will change.

Senator **Schmitt**. I agree with you. When we wake up to the real potential of space for defense and for surveillance purposes there will be a lot more launches than anybody yet has imagined. Nevertheless, you have to go with current projections when you look at pricing policy and current projections are that there are relatively few NASA launches from Vandenberg and relatively many DOD launches from Kennedy; is that correct?

Dr. **Cooper**. Yes, that is correct. But again there may be missions that we don't foresee now that will increase the number of launches from Vandenberg.

Senator **Schmitt**. Then you renegotiate that at the time you foresee it?

Dr. **Cooper**. That is correct.

Senator SCHMITT. I agree with your very general statement about the nature of the pricing policy, that it should be fair and reflect real world costs to the extent that that is practical for national defense; $156 million is requested in the fiscal year 1983 budget for procurement of an inertial upper stage vehicle which will carry defense payloads as I understand it into their various orbital positions.

DOD VEHICLE REQUIREMENTS

Will this type of vehicle satisfy all prospective DOD requirements?

Dr. COOPER. Currently the approved programs of the Department of Defense will be accommodated within the current IUS performance characteristics and the planned improvements to that performance. But if we look further toward the last couple of years of this decade where we do not yet have approved programs, but certainly foresee missions that may require placing even larger weights into higher energy orbits, we believe that there will be a need for a new high energy upper stage.

That is why the Air Force has been directed to enter into a study phase on prospects for a new high energy upper stage and have been in contact with NASA to jointly look at the national needs for high energy upper stage beyond performance capability of the IUS.

MILSTAR PROGRAM

Senator SCHMITT. What if MILSTAR or other approved payloads gain some weight through payloads with IOC's that are considerably inside the last couple years of this picture?

Dr. COOPER. As yet MILSTAR, although it is an approved program, is not other than a paper satellite; that is, it is a concept satellite so far. The estimates of whether the performance requirements of that system can be satisfied with payloads that can be taken into those high energy orbits by the IUS is yet to be determined.

I would suspect there is an even chance that the MILSTAR satellites may exceed the weight-lifting capability of the IUS upper stage in which case we certainly will have to accelerate our efforts to get a high energy upper stage with the increased performance.

Mr. LATHAM. Let me mention something. We are very keen on having MILSTAR on orbit as soon as possible, so we are constraining the design such that there is high probability we will not exceed the IUS capability to synchronous. We are constantly looking at what can be off-loaded if we have to in order to make that weight.

Senator SCHMITT. Isn't that a wrong approach?

Mr. LATHAM. It is so important to get the EHF capability up there.

Senator SCHMITT. If it is so important to have that capability and the other capabilities have their own justifications why in the world are we fooling around not building a high energy upper stage right now?

Mr. LATHAM. We are taking a hard look at how to do that.

Senator SCHMITT. Sure you are, but the IOC is totally unrealistic.

Mr. **Latham**. I don't believe it is.

Senator **Schmitt**. I think it is.

Mr. **Latham**. Of the MILSTAR?

Senator **Schmitt**. No, the high energy upper stage new procurement.

Mr. **Latham**. That may be. I am not sure about that.

Senator **Schmitt**. You should really look at it. It is not only you. There are some other payloads that we can't talk about here this morning that have the same kind of potential problem and there is a very low probability in my mind and very high cost attached to making an IOC that will satisfy weight growth potential in those satellites.

Mr. **Latham**. I agree with you. What we are doing on MILSTAR is looking at a common satellite configuration for a baseline program for both synchronous and elliptic. With elliptic IUS we can put up 2,000 pounds more than we can with synchronous. There are possibilities, again because of the certain northern hemisphere covering of certain types of missions, we might have additional things in MILSTAR in elliptic orbit and not synchronous.

Senator. **Schmitt**. Elliptic orbit is more vulnerable too?

Mr. **Latham**. Yes, sir.

HIGH ENERGY UPPER STAGE DEVELOPMENT

Senator. **Schmitt**. It seems to me everybody is scrambling around trying to make do to get some of what they need just to avoid going into the development of a high energy upper stage based on Centaur at this time. It is still something I don't fully understand.

Dr. **Copper**. I believe we will need a new high energy upper stage. I think the approach that is being taken is to carefully understand what the need will be before we start development. That is why we are entering into this short, relatively short, study phase before we move to the development phase.

I believe that we will be able to do a development that meets our essential needs in the latter part——

Senator. **Schmitt**. You know as well as I do with the existence of a high energy upper stage with a 10,000 pound geosynchronous capability we are going to be able to do everything you want to do in C3 and other activities far better than we can with a sole dependence on the IUS. The IUS is an important system, but a high energy upper stage is also needed.

We also are going to have a capability to market a whole bunch of things commercially outside of DOD. High energy upper stage is an important addition to our space capability. I see everybody doing everything they can to avoid doing that and in the process going to end up spending $1 billion to develop a new capability that won't be available until the latter part of this decade.

Nobody has every really made my understand why in the world we are going through these gyrations.

Dr. **Copper**. We agree it is an important capability overall for national needs. So we want to move carefully and clearly understand what capability we should provide for the Nation so that we can meet the Nation's needs.

Senator. **Schmitt.** The thing that bothers me is that there is a reluctance on the part of other parts of the defense and intelligence communities to come to you and say "This is a problem we are going to have." I don't understand that because in various other forums we can get a general agreement that there is a problem, but they are not coming to you with those requirements. They are afraid to say this is a firm requirement.

I guess they are afraid they are going to have to pay for it out of their budget. I don't know what it is. But because nobody has a firm requirement we are going to end up here, if things keep going like they are, not having the capability when we need it just because nobody is willing to step forward and say we have a firm requirement because that means OK, you have a firm requirement, you have pay for it.

Dr. **Copper.** It is not surprising that people who have the responsibility for developing something are unwilling to step forward and say they have a problem they can't solve it themselves. That is a human fraility.

Senator. **Schmitt.** People at your level have to exercise some human strengths and good judgment and say "OK, we understand and just to be sure and also to have an additional capability we are going to go forward with this development," but nobody is willing to do that.

Dr. **Copper.** I believe we have a reasonably good understanding of that. For instance, it is Don's conclusion that the MILSTAR will come in as a satellite that can be boosted by the IUS. I have some concerns and that is one of the reasons why I have been pressing the folks who are developing the ideas and plans for the high energy upper stage to move quickly because I believe the need will materialize more rapidly than we understand now.

I believe that this problem that we have in space of not being able to project what our needs will be and to do the technology development to supply those needs is a failing that we have. It is the conservatism of the system.

An example of something that we are going that I think will help that situation is that we will be entering into a new program in fiscal year 1983 in conjunction with NASA and the Department of Energy to look again at the prospect of providing space nuclear power in the latter part of this decade or the early 1990's.

SP-100 PROGRAM

We have a new program called "SP-100" which has the objective of providing 100 kilowatts of average power demonstrated on the ground by the end of the decade which is space qualifiable. We are hopeful that we will be able to provide copious quantities of electric power in the 1990's to meet needs which no one is willing to step up and say they have today, but which we are clearly going to have during that time period both for manned operations in space and automated space stations of one sort or another.

I think we have to have some forward looking folks who are trying to look into the future and decide what our needs will be and mount research programs required to do these. I think we are trying to do the same thing in the high energy upper stage area.

CENTAUR ROCKET SYSTEM

Senator Schmitt. If NASA proceeds with Centaur will the Department reconsider its upper stage and ~~look~~ to the next generation of orbit transvehicles?

Dr. Cooper. The Defense recognizes any system that one develops that is meant to work with the Space Shuttle will be a national system. That is it will provide for national needs. So, the capabilities that are going to be provided really have to be looked at from a national perspective. We will do that. If NASA decides to go ahead with the development of the Centaur upper stage, we certainly will work closely with them to make sure that any defense development provides a complementary capability in both performance and in time.

Senator Schmitt. Is it your conclusion that if that were done, whatever other arguments there might be against it, there would be a Centaur-based upper stage developed at less cost than required if you go to a new procurement action?

Dr. Cooper. I have looked at a number of proposals to modify the Centaur to meet our nearer end needs for higher energy upper stages. If you look at those proposals they by and large are based on the RL–10 engine, that is the one that is produced by Pratt & Whitney at West Palm Beach and the avionics systems that are currently associated with the Centaur, but the structure, the tankage, and much of the rest of the design of the vehicle is new.

I have estimated that about 40 percent of the designs that have been put forward are really directly traceable to the old Centaur. So you are in any event going to have a 60-percent new vehicle. It is hard to say exactly what the cost of a development based on modifying the design of an older vehicle is going to be and how it will compare with an entirely new development.

I don't believe we have the designs firmly enough in mind either for modified Centaur or for a new vehicle to be able to compare prices to more than say 30 or 40 percent certainty. I don't think it is really possible to tell on that right now.

Senator Schmitt. It sounds like we never built anything for use in space. You can't make any closer estimate than that?

Dr. Cooper. No. I think it is just difficult to determine how much it is going to cost to modify something. That is a difficult thing until you get into the bowels of it.

Senator Schmitt. You indicated, yourself, most of the modifications are cutting metal.

Dr. Cooper. That is true.

Senator Schmitt. The engine and avionics are already there.

Dr. Cooper. The tough part is the analysis. It is analyzing the new structures you are going to create to find out if they are going to be able to stand shake, rattle, and roll. Engineering design, all the analysis that goes with it, which is manpower intensive, is expensive. That is the thing we are unable to estimate as precisely as we should. Until we have the precise work packages well understood you can't really tell how many man-hours or person-hours it is going to take to accomplish that work.

REPROGRAMING REQUEST

Senator SCHMITT. How soon do you expect to have that information? Will the $4 million the Air Force is requesting for reprograming in this area be sufficient?

Dr. COOPER. We believe that preliminarily designs will be available in about a year that could be successfully compared with the preliminary designs of modified vehicles.

Senator SCHMITT. That is the purpose of the $4 million?

Dr. COOPER. Yes.

Senator SCHMITT. If reprograming action along these lines were approved would follow-on money in fiscal year 1983 have to be drawn away from existing IUS programs or other Shuttle programs or another reprograming or what?

Dr. COOPER. No; the funding for that development will not impact the IUS funding. It will be drawn from other areas of the Air Force budget.

Senator SCHMITT. It will be reprograming rather than a modification of the 1983 budget request?

Dr. COOPER. Yes; it would be. The proposal is to reprogram 1983 funds.

Senator SCHMITT. Should we, before we approve the $4 million, at least have a general idea where the reprograming request will come from for the follow-on?

Dr. COOPER. I don't believe that is necessary. I believe the level of reprograming that will be required to support this overall program is uncertain as yet until we get the structure of the program outlined by the study which will be supported by the $4 million. It is going to be difficult even to say how much funds will be required in 1983 and out-years.

Senator SCHMITT. But you think there would be sufficient uncommitted funds in the Space Shuttle programs for defense to support it?

Dr. COOPER. I believe that sufficient funds within the space, general space area, in the Air Force budget can be found to support this development activity.

Senator SCHMITT. In 1983?

Dr. COOPER. In 1983.

Senator SCHMITT. But that is another uncertainty in making the schedule; is that right?

Dr. COOPER. I don't believe that the level of funds required in 1983 will be an uncertainty. I think we will be able to find lower priority work that can be deferred in deference to this particular higher priority project.

Senator SCHMITT. Are you satisfied that the IUS problems are behind us and in fact we are going to see a successful vehicle?

Dr. COOPER. Yes, I think both the technical and the financial problems that IUS has had in the past are behind us and that there will not be any substantial change in that program required, either in the financial area or in the technical area in the future. I think we are in pretty good shape.

Senator SCHMITT. Pretty good shape?

Dr. **Cooper.** Yes. There is one open issue and that is exactly what the production unit cost will be and those costs are under consideration now.

Senator **Schmitt.** Wouldn't you feel better if you had a tried-and-true launch vehicle backing the IUS like you would like to have ELV's to back the Space Shuttle up?

Dr. **Cooper.** We believe the IUS is a very capable vehicle. It has high redundancy; it has all the properties that we believe a national high energy upper stage should have, and we have high confidence that will meet national needs for the next 4 or 5 years at least.

SPACE-BASED LASER

Senator **Schmitt.** When you mention the space-based laser program I think you said $150 million in fiscal year 1983.

Does that include the work being done on an airborne laser system? Do you include that as one and the same program?

Dr. **Cooper.** I guess I don't understand what you are referring t.

Senator **Schmitt.** Work is being done at the Air Force Weapons Laboratory on airborne lasers. Is that considered part of the technology base that contributes to the space-based laser or is the space-based laser activity a separae programmatic activity?

Dr. **Cooper.** It is a separate programmatic activity. It has five major elements. There are three technology feasibility demonstrations that are being carried out by DARPA. There is one major supporting technology program at DARPA and then a major Air Force program that is looking at the system aspects of space-based lasers.

These programs are considered as a separate program. They are managed jointly out of the Office of the Under Secretary of Defense for Research and Engineering and they are subject to a memorandum of agreement and a joint plan which has been developed by the Office of the Secretary of the Air Force.

So, all of these programs are welded together, are considered together and are being managed together.

LASER PROGRAM OFFICES

Senator **Schmitt.** Is there a specific program office centered at Norton; is that correct?

Dr. **Cooper.** There is a program office that has been established at the Space Division in Los Angeles, Space Division of the Air Force.

Senator **Schmitt.** How does this relate to the activity being directed out of Norton? Isn't there a laser program office at Norton?

Dr. **Cooper.** I am not familiar with that.

Senator **Schmitt.** Connected with the Air Force laser program?

Dr. **Cooper.** I am not familiar with that.

Senator **Schmitt.** We will try to clean that up. We will have some questions for the record. But this programmatic activity you are talking about is the activity that was established in part in response to congressional direction a year or so ago?

Dr. **Cooper.** Yes, it is. Both the setting up of the program office in the Space Division of the Air Force and the setting up of the activities in U.S.D.R. & E. are a result of the sensitivity that the Congress had to the lack of coordination in this program.

Now the responsibility of the new Deputy Assistant Secretary's position that we have created in U.S.D.R. & E. is broader than just the space-based laser program. It encompases the rest of the high energy laser program and high-beam particles program as well. Those programs will be managed from a vertically integrated point of view from U.S.D.R. & E. and closely coordinated.

COORDINATION OF SPACE LASER/AIRBORNE LASER PROGRAMS

Senator **Schmitt**. How is liaison between the Air Force airborne laser program and the space laser program carried out?

Dr. **Cooper**. Again that coordination rests in my deputy in U.S.D.R. & E., Gen. Donald Lamberson. He has the responsibility for assuring that the activities in the high energy laser program overall and the space-based laser weapon program are well coordinated.

Now as a practical matter two of the major demonstration programs are being funded through the Air Force Weapons Laboratory as an agency. Both the Large Optics Demonstration [LODE] program and the ALPHA high energy space-based laser development activity are managed through the weapons laboratory as an agency to DARPA. So there is close coordination through the channel at the working level.

So there is both coordination from the senior management level and then there is this auxiliary coordination mechanism of the agency of the weapons laboratory and the Air Force Weapons Laboratory people for the space-based laser weapon program.

Senator **Schmitt**. Could you provide us again a diagrammatic representation of the interrelationship of the DOD weapons laser program?

Dr. **Cooper**. We will provide you a wiring diagram. Also we will be able to provide you with the overall space-based weapon plan which is now being coordinated between the Director of DARPA and the Secretary of the Air Force.

[The information follows:]

High Energy Program Management

The linchpin of the new management structure for the Department of Defense High Energy Laser program is the establishment of a position for the Assistant Secretary of Defense for Research and Technology, and "double hatted" position, to be occupied concurrently by the Director of the Defense Advanced Research Projects Agency. The management focus for the DOD high energy laser program will be a member of this office, when it is created. Legislation for the establishment of the position is presently before Congress. However, until the bill has passed we cannot provide a "wiring diagram" for the office. Major General Donald L. Lamberson, US Air Force, has been appointed to the position of Assistant for Directed Energy Weapons to the Under Secretary of Defense for Research and Engineering. He has staff responsibility for the USDRE for all of the directed energy programs, including those in DARPA.

TECHNICAL PROBLEMS IN LASER WEAPONS

Senator **Schmitt**. Do you believe that the current program overall in laser weapons, and I really would rather say directed energy weapons, is funding limited, not technology limited, as the GAO has concluded?

Dr. COOPER. I believe the accountants in GAO feel that the technical problems in that program are behind us. I think that the technical people at DARPA feel that the financial problems in that program are behind us.

Now if you ask me what I believe that accountants' view of the financial situation is and the technical people's view of the technical problems, I woiuld probably characterize those in a different way. I think the technical people believe we have a very sound program now, that it is adequately funded and is moving at a very fast pace, probably as at fast a pace as we can mount in that area today.

Senator SCHMITT. Are we pursuing enough parallel technologies in critical areas where there is some technical risk?

Dr. COOPER. Yes, indeed. We have carried that through the program in almost every one of its aspects. In addition we have a very large investment, around $30 million, in advanced technology that even goes far beyond the capabilities that we are pursuing today, that is, pursuing technologies at the very short wavelengths at very, very high pointing precisions and so on.

So, I believe we have a very well balanced program. Where there is high risk, we are pursuing parallel lines of development. I think we have a high probability of meeting many, if not all, of the goals that we have set for ourselves in that 1986–87 time period when I feel we will have largely conquered the technical problems and be ready to make a decision as to whether something should be demonstrated in space.

Senator SCHMITT. When?

Dr. COOPER. In the 1986–87 time period we will have the technical problems under control to the point where we could decide whether a space demonstration of a space-based weapon system is a desirable thing to proceed with.

AIRBORNE SYSTEM DEMONSTRATION

Senator SCHMITT. What about demonstration of an airborne system?

Dr. COOPER. We have a demonstration——

Senator SCHMITT. I mean a weapon system, not a laboratory system.

Dr. COOPER. We have as yet to define or determine what precise mission an airborne weapon system might be useful for.

Senator SCHMITT. Then why are we doing the development? It seems to me at least you would have some ideas.

Dr. COOPER. There are some ideas about how lasers might be used in airborne systems. I think as yet we don't have a clear-cut understanding of what advantage there would be to a particular laser weapon mission on an aircraft.

There are a number of possible opportunities there, but I think we still have a good deal of work to do on understanding exactly how these weapons might be employed from aircraft. We have some work left there to do.

Senator Schmitt. Could you characterize by percentage the applicability of the technology development work that is associated with the airborne laser laboratory effort to the space-based laser effort?

Is the optical work being done, pointing and tracking work being done, at all applicable? Are we learning nothing but space-based lasers by the efforts underway at the Air Force Weapons Laboratory?

Dr. Cooper. No; I would say it would have been difficult to undertake the technical programs and to attack the objectives that we have in the space-based laser program without the foundation of knowledge that was generated in the airborne laser laboratory program. But the direct applicability of that technology is small.

That is, we are actually reaching orders of magnitude beyond the performance capabilities demonstrated in the Airborne Laser Laboratory [ALL]. As a matter of fact, more than six orders of magnitude. So, there are fundamental differences in approaches.

Senator Schmitt. You are talking about both pointing and tracking accuracy and energy delivery?

Dr. Cooper. Yes. Consequently, since we are reaching so far, the direct applicability of the technology is small. Again the foundation of understanding we have gained from the operation of the airborne laser lab has been a help in directing our program and given us the insight we need to move in the right directions.

Senator Schmitt. I take it you are skeptical and the Department is skeptical about the concept of a battleship of the air, if you will, that will protect the bomber fleet or the use of a picket system to protect against SLBM launches?

Dr. Cooper. No; I believe both of these missions may have some potential usefulness in the future. I think we have to clearly understand how they would be employed, what the performance capabilities would be that would be required, and what the alternatives are, how these missions could be perhaps satisfied by other alternatives and what the costs and the performance trade-off might be there.

MISSIONS OF AIRBORNE LASER PROGRAM

Senator Schmitt. I came into this hearing with a pretty warm feeling about the airborne laser program and that it had some thought behind it and that it has some worthwhile goals to pursue. I hope that in fact you are studying these programs and we are not going to end up having spent all that money and deciding that not only is it not very useful in the air, but that it does not have much applicability any longer to the larger effort of space-borne lasers.

Dr. Cooper. The answer is yes, we are doing those studies and analyses and working toward determining precisely what airborne missions should be pursued in the future.

Senator Schmitt. Do you have a milestone date for further development?

Dr. Cooper. Yes; I have one.

Senator Schmitt. Can you supply that for the record?

Dr. Cooper. We will certainly do that.

Senator Schmitt. Along with an indication of just what funds have been allocated and are allocated to the airborne system?

Dr. **Cooper**. OK.

Senator **Schmitt**. And if there are any other missions besides the two that I outlined that you think are worth considering as options? I won't hold you to them because I know you are blue-skying to a certain degree—pardon the expression.

[The information follows:]

Airborne Laser Development Milestone

Our current efforts are directed toward a fiscal year 1985 decision milestone on the development of airborne laser weapons. These efforts are threefold. First, the Airborne Laser Laboratory is determining the technical and engineering fasibility of airborne laser weapons. This program has shown that a high energy laser can operate on an airplane and that supersonic missiles can be acquired, tracked with precision, and engaged with a laser beam [deleted]. We intend to complete these initial feasibility demonstrations next year. We are also examining ways to further utilize the Airborne Laser Laboratory as a testbed to gather data [deleted] for the more advanced airborne and space laser applications. Our second effort is the development of laser subsystem technologies for higher power, longer range airborne lasers. This activity comes to a focus with subsystem demonstrations [deleted]. Thirdly, we are conducting studies to define operational concepts and to assess mission performance, cost effectiveness, and logistics supportability of airborne laser weapons. Current activity centers on an ongoing study to identify and priority rank promising applications of airborne laser weapons, thereby providing a focus for technology and system development. This threefold program will provide the basis for the fiscal year 1985 development decision.

APPROPRIATED FUNDS FOR AIR FORCE PROGRAM

Senator **Schmitt**. Has the $20 million appropriated for the Air Force program last year by the Congress been released?

Dr. **Cooper**. No, it has not.

Senator **Schmitt**. What is the status of that? When are you going to live up to the letter of the law?

Dr. **Cooper**. There is a discussion I think ongoing now between the authorization and appropriation people to try to resolve certain questions having to do with that funding. That has not been resolved.

Senator **Schmitt**. You have obviously decided which committee you have to respond to the most. I hope that you continue to reconsider that.

SHORT WAVELENGTH LASER TECHNOLOGY

The House Armed Service Committee zeroed the DARPA high-energy technology program, ALPHA chemical program and the LODE optics program all of which are related to the space-based laser effort about which we are speaking. Instead they added $50 million for short wavelength laser technology.

What impact would the House Armed Services Committee action have on the cost and schedule of the space-based laser program?

Dr. **Cooper**. The short answer is that if the recommendations of the House Armed Services Committee are approved by the House as a whole the Nation will no longer have a space-based laser weapon program.

I would like to clarify at least one part of the action that was taken by the House in this markup. They did reduce the high energy space-based laser research program by $44.7 million. Then they added $50 million. Of that $44.7 million approximately $30 million of it was already being spent on short wavelength laser research and development and consequently the $50 million that was added was in effect only a $20 million addition for the pursuit of short wavelength lasers.

So they took it away with one hand and gave it back with the other. It was not as much of an increase in the short wavelength laser area that they were proposing. The overall effect of what they have done of course is to take away the development of an option in the 1986-87 time period to consider deployment or consider the demonstration at least of a space-based laser weapon system.

There are other parts of the program that I believe would have to be modified substantially or canceled because there is no way that you could go forward with these anciliary development activities without the device itself. That is, without the development of the laser device, itself.

Without the laser there is no space-based laser weapon system. Any short wavelength laser research we have ongoing I believe will not bear fruit until well in the 1990's, if not toward the end of the 1990's.

Senator SCHMITT. That is the principal shortcoming of the short wavelength laser technology?

Dr. COOPER. It is immature at this stage. The laws of physics say that is a terrific technology to pursue and we should put a substantial sum of money into moving that technology along as rapidly as we can. We are doing that with the $30 million I mentioned before.

Senator SCHMITT. Can the additional $20 million be efficiently spent toward increased maturity of this program?

Dr. COOPER. I don't believe that increased funding at this time can cause the shortwave length laser research to move forward more rapidly. We have some severe problems in the proposed approaches that we are taking now which we are working on vigorously with all the funding I believe is required to resolve these problems.

I can't see any new good ideas to fund. If I do, that is, if those ideas come walking through the front door of DARPA, I have the flexibility to be able to reprogram funding from other program areas to take advantage of those without any additional funds being added in that particular program line.

LOS ALAMOS LABORATORY RESEARCH EFFORTS

Senator SCHMITT. Would you discuss now for us the fiscal year 1983 research efforts being conducted in part at the Los Alamos National Laboratory in support of the accelerator test stand related to particle beam activity?

Dr. COOPER. Yes. We have an ongoing program there to demonstrate the capability to produce neutral particle beams which could be useful in space-based directed energy weapon systems in the very distant future.

Senator SCHMITT. Are you thinking of that in a timeframe comparable to the short wavelength laser?

Dr. COOPER. Yes. It would be competitive perhaps with short wavelength technology in the latter part of the nineties. The near-term objectives of that program are to demonstrate at 3 MeV a neutral particle beam and we are hopeful that over the next year we can meet the near-term objectives of that program.

It is a very important program and one that we are quite hopeful on.

AIR FORCE WEAPONS LAB AND SANDIA LAB COOPERATIVE EFFORT

Senator SCHMITT. Is there an anciliary effort underway in cooperation with the Air Force Weapons Lab and Sandia Lab?

Dr. COOPER. Yes, there is.

Senator SCHMITT. Those are coordinated programs, are they not?

Dr. COOPER. Yes, indeed. Under congressional urging DARPA is the coordinator of that particle beam weapon research activity for all of the Defense Department.

We do coordinate activity at the Weapons Laboratory at Sandia and also some work at NRL and the Navy as well in the particle beam program.

Senator SCHMITT. Are you idea limited there as well also?

Dr. COOPER. Yes. I believe we are moving that technology along as a fast as it can be moved. There are key problems. Each one of these problems has to be knocked down one at a time. We have to look at the emerging problems that come out of the research program that we have. I think we are doing that at a substantial rate now and I think we are right on track for the major milestones in our program there.

Senator SCHMITT. What is your personal assessment of the potential of directed energy weapons to make both aircraft and missile delivery of nuclear weapons obsolete?

Dr. COOPER. Well, that certainly is the most ambitious goal that could be undertaken by any technology development.

Senator SCHMITT. Or any nation?

Dr. COOPER. Or any nation, for that matter. It is certainly a worthy objective, but a very difficult one.

Senator SCHMITT. Isn't that what is behind the whole effort? Isn't that the philosophical underpinning of this funding for lasers and particle beam development?

Dr. COOPER. At least in part. I believe there are probably near-term applications of the technology that may be equally as important as these more stressing long-term objectives.

For instance, an antisatellite system based on space-based laser weaponry could be a near term, less stressing possible goal.

Senator SCHMITT. It is more difficult to defend against an antisatellite laser than it would be to defend against an antisatellite satellite or missile?

Dr. COOPER. Yes, I believe so. The firepower and the flexibility of such a laser weapon system against satellites would be very difficult to defend against.

Senator SCHMITT. It is very difficult to have either maneuvering or passive defense of a satellite against a high energy beam, is that correct?

Dr. COOPER. Yes, I believe that is right.

Senator SCHMITT. When you point it you hit it, right? You know what it is?

Dr. **Cooper**. Well, there is some requirement to point ahead, but it is highly predictable and we think we can do it. Even when the targets are going at the speed of light there is some Kentucky windage required when the target is moving 7 or 8 kilometers a second.

MILSTAR

Senator **Schmitt**. With respect to MILSTAR I think we all understand the requirement for this system and its extraordinary mission. It clearly puts the space system in the business of making all the missions, almost all the missions of all the services, more doable on the surface of the earth or in its atmosphere or in its oceans, but what is the total projected cost of the program?

Mr. **Latham**. We don't have a total projected cost yet. We have three spacecraft contractor teams defining the spacecraft with such detail that we can enter into full-scale development in March 1983.

In addition, the Air Force is about to award one or more, probably two at least, payload competitive development contracts, again to define the payload to a sufficient detail such that we can enter full-scale engineering development with a payload in March 1983.

At this time the total system cost just is really not known, sir.

Senator **Schmitt**. Do you have a year-by-year breakdown out to the next few years?

Mr. **Latham**. Yes, sir, and I can supply that for the record.

Senator **Schmitt**. Will you do so?

Mr. **Latham**. Yes, sir, I will be glad to.

[The information follows:]

SPACE SYSTEMS

[In millions of dollars]

	Fiscal years—		
	1983	1984	1985
MILSTAR program:			
R.D.T. & E.	$79.8	$232	[Deleted.]
Procurement		Do.	
Totals	79.8	232	Do.

VULNERABILITY TO ANTISATELLITE ACTIVITY

Senator **Schmitt**. Can you tell us anything in open session about what is being done to minimize the vulnerability of the system to antisatellite activity?

Mr. **Latham**. Yes, sir, we can talk about a few things. Obviously the satellite would be hardened to nuclear effects and we are taking a very hard view of that in that the requirements laid on the spacecraft designers are substantially harder than anything we have designed or known so far, all effects.

Second, we are looking at the ability of the satellite to be maneuverable and how would that be affected and how many times one would have to maneuver and how you trade off the total spacecraft weight for maneuver energy.

We are taking some other measures that would make the system as a system more survivable. For example, we will not be tethered to Sunnyvale. We will have the capability to command and control the spacecraft, take care of its health and welfare, feeding, and its payload control from numerous terminals that will be operational terminals as well as control terminals deployed around the world. So that there is no fixed ground site or even two or three fixed sites that are required for control of the satellite.

There are some other features that we are taking a look at that we believe will make it a highly survivable system.

Senator SCHMITT. So, another potential requirement that might add weight to this and other satellites would be antisatellite protection.

Mr. LATHAM. Yes, sir. The way we are designing the MILSTAR is that we will be able to block change that. For example, in aircraft technology or terminology we put crude bay wiring in and later on may have to put a black box in where the wiring has been allotted.

For MILSTAR we are designing it such that at some later date, if we so desire, we can assign other payload capability to it. We are putting the design of the power structure and wiring in initially and then later on will probably add this other payload.

Senator SCHMITT. Is that generally a concept you are going to apply to new military spacecraft?

Mr. LATHAM. I believe so. If we plan ahead like that it allows us to be able to grow these spacecraft much more coherently than in some haphazard way.

Senator SCHMITT. Why did you decide to proceed with one system of six satellites rather than more redundancy within the total system?

Mr. LATHAM. In the MILSTAR case, sir?

Senator SCHMITT. Yes.

Mr. LATHAM. It is proposed to be a seven-satellite constellation, sir. That is based on several factors.

One, we have done a detailed analysis of how many channels of capacity we need to satisfy the various users of that system. Army, Navy, Air Force, and the NCA. That has driven certain access worldwide.

Second, there are certain areas that we need to cover more thoroughly than other areas of the world for high-density communications and that has been a further factor in driving us to that system configuration. So that it is a capacity and coverage revisit time that we have analyzed and we believe the seven satellite configuration is what we are going to need.

SATELLITE COMMUNICATIONS TECHNOLOGY

Senator SCHMITT. In this area as well as others what are you doing to insure that the current technology base for satellite communications technology is retained and expanded in the face of threats of foreign competition, small contractors not being able to bid on these programs structured in this way?

Mr. LATHAM. There are, in fact, a lot of small contractors bidding on this. That is one of the things that we have been trying to do with MILSTAR, to get competition in the program. What we have been able to generate so far are three teams of two large companies and then other companies underneath those large companies in the teaming arrangement.

So that in any given MILSTAR team today you find many, many companies now involved for various pieces of the spacecraft. In that way the technology base is being spread around quite diffusively.

COMMERCIAL SATELLITE COMPETITION BY FRANCE AND JAPAN

Senator **Schmitt**. Do you see the French and Japanese targeting of the satellite business for commercial satellite business, for intensified competition with the United States as a threat to our defense capability?

Mr. **Latham**. I don't see it as a threat to our defense capabilty. It may be an inroad they are going to try to make in the commercial side.

Senator **Schmitt**. Does this undermine our industrial base? Should we be looking for ways to compete better commercially, financing arrangements and other ways, in order to maintain a stronger defense industrial base in these areas?

Mr. **Latham**. Perhaps we should. I am not too concerned about the military technology industrial base for space communications systems. I don't think that is a problem.

Senator **Schmitt**. You think all the commerical satellite business could disappear from the United States and we could still maintain the equivalent base we have today and be able to expand it?

Mr. **Latham**. Equivalent technical base?

Senator **Schmitt**. Yes.

Mr. **Latham**. That is a hard thing to say.

Senator **Schmitt**. And production. Let me rephrase the question.

FOREIGN COMPUTER COMPETITION

Is the DOD actively concerned about the competition, what some people would call unfair competition, in terms of financing that the industry is faced with today and are you at all involved with Ambassador Brock and others to try to find some solution to it?

Dr. **Cooper**. Perhaps I could address that question.

There are a number of technology areas where we believe defense interests are possibly compromised if the competitive position that the United States has in these technology areas were to diminish substantially. Two of those areas are in communications in computer science, computer technology.

The commercial threat from abroad in both of those areas is of concern to defense. By and large the concern is greater in the computer area than it is in communications because defense needs in communications are enough different from commerical need so that we tend to fund and to pursue lines of technology with research dollars in the defense establishment that are aimed at our essential needs.

But I believe that in either one of these areas, if the broad commercial base were significantly eroded in the United States that it would provide concern to defense and we would probably have to step up our support for computer research and communication research to compensate for that.

COST TRADE-OFFS

Senator **Schmitt**. Are you working with Ambassador Brock to try to determine the cost trade-offs here, the trade-off between providing more favorable financial arrangements through the Export-Import Bank possibly versus the cost of future support for the technological base of the particular industry?

Dr. **Cooper**. Yes, we have close coordination with the Ambassador and his efforts to try to give to him the insights he needs to understand the potential impact on defense of possible competitive positions abroad so that he can factor that in during his deliberations.

Mr. **Latham**. Let me add a point about commerical satellites and our use of them. Today we are making heavy use of leased commercial communication satellite links for the Department of Defense. In fact, we believe this is going to increase. There is an RFP, in fact, that will be on the street in May from the Defense Communications Agency soliciting a major communications satellite lease arrangement for military communications worldwide in addition to what we already have.

Second, we have held high-level discussions and are continuing to do that with the commercial satellite industry to take initiatives to see how their satellite designs, including the terminals and other features, could be made more survivable and enduring for military use in wartime.

We have established a Telecommunication Advisory Council that represents the satellite communications industry and many of their suppliers and other peoples in the Telecommunications industry to work this particular problem area.

We are establishing, in the Defense Communications Agency, a coordinator and manager of the commerical satellite world as it relates to DOD.

We have military satellite office in the DCA which worries about the interface and architecture and other things as they relate to the commerical world. There is a lot of interest in a commerical communications satellite and it would be devastating if in fact that base were to erode.

Senator **Schmitt**. What you are referring to is a satellite CRAF Cooper program?

Mr. **Latham**. You lose me on that.

Senator **Schmitt**. What we do to subsidize commerical airlines so that they can provide transport in times of hostility.

Mr. **Latham**. The way it works today we have a major telecommunications leasing office at Scott Air Force Base run by the DCA and they lease all the telecommunications for the Department of Defense, land lines, microwave and satellite communications.

Senator **Schmitt**. When you talk about modifying commercial satellite design so that it can better serve defense needs if we are in a hostile environment are you talking about actually subsidizing that design?

Mr. **Latham**. We don't know yet. We are trying to determine what is the most economical way for the satellite industry to respond to some initiative such as that. For example, even adding encryption, who pays for that? In the current RFP that is going out we will pay for that encryption for use in the satellite and everything will be encrypted.

If the fellow said "I will design my new communications satellite and I will make it nuclear hard," who will pay the difference is not clear. Will it be recouped in leasing arrangements or up front? It is not clear yet.

Senator **Schmitt**. Are you aware that the NASA technology verification program for the 30-20 GHz technology has been eliminated from the NASA budget?

Mr. **Latham**. Yes, sir.

Senator **Schmitt**. The administration has stated that MILSTAR will demonstrate some of the technology that 30-20 GHz was developed for.

Can you identify those areas of commonality as well as the differences either now or for our record?

Mr. **Latham**. Yes, sir, I will be glad to do it now. We can supply more for the record.

[The information follows:]

30-20 GHz TECHNOLOGY FOR MILSTAR

The areas of commonality between the DOD MILSTAR and the NASA 20/30 GHz programs are as follows:

(1) Both use the nominal 20 GHz downlink (the U.S. military frequency band is adjacent to the U.S. commerical frequency band). DOD and NASA are jointly involved in the development of 20 GHz satellite traveling wave-tube amplifier. The 20 GHz terminal receiver techology is also compatible and technology is jointly being developed for the terminal low-noise amplifier.

(2) Both the NASA 20/30 GHz system and the MILSTAR use onboard base-band processing for routing, but the processor design will be completely different.

(3) The two programs have more differences than similarities. The major difference between the two systems is that MILSTAR, as a system to support the strategic and tactical forces throughout the spectrum of conflict, must provide substantial jam-resistance and nuclear-hardening protection. The MILSTAR, therefore, will employ nulling antennas and onboard spread spectrum jam-resistance system, which are obviously not required in civilian programs. The NASA 20/30 GHz program, on the other hand, emphasizes high data throughput not supportable in a jamming evironment.

Mr. **Latham**. NASA has 30-20. We have 44-20. There is equipment you will require such as traveling wave tubes, solid state power amplifiers or things of that nature at the 20 GHz frequency range.

In addition, there is a possibility, and we are examining this as a block change to the DSCS III program, to increase the throughput and wideband capability of specialized uses of going to 30-20 someday. We are not neglecting that technology or that potential. I am not overly concerned that the NASA program has been eliminated. I think it would be helpful to have them pursue some work in this area because again it may have impact on the commercial side.

Senator **Schmitt**. Will the commercial sector have access to the date on MILSTAR and DSCS block change?

Mr. **Latham**. Yes, sir, absolutely. There is nothing classified about the components or subsystems on either of those satellites per se. Some of the details of antenana technology to get around jamming and things of that nature would be classified, but a traveling wave tube or something of that nature will be available.

CSOC DESIGN AND CONSTRUCTION

Senator SCHMITT. Dr. Cooper, in the absence of a developed or approved space policy are you comfortable with proceeding with the full design and construction of CSOC at this time, Consolidated Space Operations Center?

Dr. COOPER. We have a fully developed internal space defense policy now. We have a draft document which is in coordination which I believe has everyone's support. I see no major barriers to our executing on that policy today. I think that the policy is adequate to define our basic objectives in defense space for the next ten years or so.

I think we are in a position where we can proceed with major plans of the sort that CSOC represents on the basis of the draft policy we have available to us.

Senator SCHMITT. That is a draft policy. CSOC supposedly is more than a third designed at this time. Presumably that was done in the absence of that policy and any finally approved policy.

Doesn't that make you a little bit uncomfortable? I realize that it is clear you need a backup in Sunnyvale. When you start talking about a cost-effective integration of that backup capability it might eventually become involved with all other activities, both Shuttle and non-Shuttle-related, it seems to me like you have bitten off a big chunk without really every having the benefit of a well-defined approved policy for defense activities in space.

Dr. COOPER. Looking at the planned activities, design and development of the CSOC, I see no major disparities between the plans there and the current space policy.

Senator SCHMITT. You may not, but I think you can understand why some in Congress are a little bit uncomfortable in buying a "pig" in CSOC because you are requesting construction funds.

Dr. COOPER. Yes, I understand.

Senator SCHMITT. I don't want my comments to indicate that I don't believe eventually I don't want to consolidate a space research center. I think it is something we will need.

I am really concerned that we go forward with a construction of a center of that kind where there is not any strong evidence at least before the Congress that the significant aspects of that system have been coordinated with a developed and approved space policy.

Dr. COOPER. I think we owe you an explanation now of what our policy is and how our plans relate to that policy.

COMPUTER CHOICE

Senator SCHMITT. I think you do too. I am particularly concerned about the choice of computers. For example, I have had the argument presented to me that the choice is based on the nature of the existing computers at the mission control center in Houston, which in turn are about 20 years out of date because of a decision made by NASA not to upgrade their computer system for the Space Shuttle in order to save dollars.

Whether that is still part of the CSOC design I think is one that is clearly open to some question. At least for a CSOC you ought to go to the most modern and flexible data management system that you possibly can.

Dr. **Cooper**. I agree.

Senator **Schmitt**. That is just one of many questions that I think really need to be answered. You have to be absolutely sure they are answered before you get yourself into a position of spending construction funds on a facility that later may come back and say to you, "Whoops, plans have changed, the policy has changed and we are really not going to do it that way, we need money in order to change our mind."

I don't want to get you in that position. Mind changes are hard to justify over here.

It is our understanding that the NAVSTAR qualification test vehicle incorporating significant design changes will be tested in August. Is that correct?

Mr. **Latham**. I believe that is so. I am not familiar with the exact changes. I can get that for you.

[The information follows:]

GPS Production Satellite

The GPS production satellite is a low risk evolution from the successful R&D satellite development; 77 percent of the major components are either identical to or a modification of the qualified R&D components. Another 10 percent are existing on modified components from other space craft programs.

The changes are as follows:

The structure is a new design to support shuttle launch and additional power requirements.

The Attitude and Velocity Control Subsystem contains a new accelerometer and control electronics assembly.

The Reaction Control Subsystem contains larger hydrazine tanks to support the longer GPS design life.

The Electric Power Subsystem includes new solar array panels to support increased power requirement and a longer design life.

The Orbit Insertion System includes a new motor.

The Navigation Subsystem contains a new navigation data unit.

The Integrated Transfer Subsystem contains a new transmitter/receiver, digital processor and antenna.

All of these modifications are low risk either due to their inherent nature or because of legacy from earlier developments.

Fully 89 percent of the production work is being accomplished by the same contractor/subcontractor responsible for the development effort. The remainder of the effort involves subcontractors with prior GPS experience in related areas.

MULTIYEAR FIXED PRICE PRODUCTION CONTRACT

Senator **Schmitt**. Independent of that or not independent of that, is it correct that we intend to enter into a $1.3 billion multiyear fixed price production contract for all 28 satellites in 1982?

Mr. **Latham**. Not in 1982. I don't know that we would sign that contract in 1982. I am not sure. That is the proposal that is lying on the Air Force's desk from the contractor. The reprograming action in 1982 would be only $20 million and that would start us committed to production. I don't know if that means signing that large contract or not.

Senator SCHMITT. Can you provide our record some details on when you think the contractor and DOD will be in a position to go to a multiyear procurement?

Mr. LATHAM. Yes, sir.

[The information follows:]

MULTIYEAR FIXED PRICE PRODUCTION CONTRACT

Assuming Congressional approval of the $20.1M reprograming request, the Air Force intends to negotiate and award a multiyear contract in fiscal year 1982 for the full 28 satellite block buy.

Senator SCHMITT. As I indicated earlier, I am very enthusiastic about it, but I also believe you have to have a development which has to be essentially completed and you have to know exactly what you are getting into.

Mr. LATHAM. Yes, sir.

Senator SCHMITT. Or we are going to be faced with canceling a program or bailing out a contract.

Mr. LATHAM. Yes.

Senator SCHMITT. Neither of which goes down very well over here.

Mr. LATHAM. Right.

Senator SCHMITT. But you would like to have approval this year of a multi-year procurement package for the system?

Mr. LATHAM. Yes, sir.

Senator SCHMITT. Based on the estimated cost, I presume?

Mr. LATHAM. Well, it is a firm fixed-price proposal from the contractor. That is his estimate. He is willing to sign up with that for $1.3 billion for the 28 satellites.

Senator SCHMITT. Is there any qualification there based on the test of the qualification vehicle?

Mr. LATHAM. I am not certain. I will have to check that.

Senator SCHMITT. Will you let us know?

Mr. LATHAM. Yes, sir.

[The information follows:]

QUALIFICATION BASED ON TEST OF QUALIFICATION VEHICLE

Under the planned multiyear, fixed price incentive contract, the contractor will be responsible within the scope of the contract for implementation of any "product improvements" or "fix" efforts required to correct deficiencies discovered in testing.

Further, the risk that qualification testing will reveal deficiencies which may require modification to production satellites is very low. The production configuration is an evolution of the highly successful design used on the 11 R&D satellites; 77 percent of the major components are either identical to, or modifications of, qualified GPS R&D satellite components. An additional 10 percent are existing or modified components from other qualified spacecraft programs.

The production configuration is also very stable. The System Critical Design review has been completed and 100 percent of the drawings will be released to manufacturing prior to the production contract award.

MULTIYEAR CONTRACTS

Senator SCHMITT. I think many contractors, it is my impression, are beginning to recognize that the risks of a multiyear procurement are not nearly as great as the risk of annual procurement.

Mr. LATHAM. That is correct.

Senator SCHMITT. Do you agree with that?

Mr. LATHAM. I agree. The aerospace industry in particular would welcome more multiyear contracts. It provides them a much better planning base, much more stability in the work force, much better management of the subcontractors. It is a better way to go.

Senator SCHMITT. Is it your understanding FAA will certify GPS as an adequate navigation system for non-military aircraft operating within the United States?

Mr. LATHAM. They have taken the position that they are quite interested in GPS and they are waiting to see exactly when the system will become operational and then decide when they woud certify it for their use. Right now it looks to be approximately the 1991 time period that they would certify it for use and have it available for the private plane owner and so on.

It is tied to some practical factors such as will there be a low costing PS reserve available for the private aircraft operator. I mean low cost, meaning $3,000 or $4,000 or $5,000.

Senator SCHMITT. What do you see as the cost of reserves that are going to be procured by the military?

Mr. LATHAM. The DOD?

Senator SCHMITT. Yes.

Mr. LATHAM. The hope is that these reserves will be in the $10,000 or $20,000 class range at the most for the various classes of users.

Senator SCHMITT. So the FAA is talking about getting a factor of two to four decrease in that price?

Mr. LATHAM. Yes, sir.

Senator SCHMITT. Prior to approval for commercial use?

Mr. LATHAM. Yes, sir.

Senator SCHMITT. That certainly is well within the realm of experience in these kinds of electronic systems, is it not?

Mr. LATHAM. Yes; if you look at the fact they are buying transceivers today commercially it is amazing how much they have gotten the price down.

Senator SCHMITT. Now the services have within their plans to incorporate GPS as their primary navigation system?

Mr. LATHAM. Yes, sir, when it comes on line. It is a matter of time phasing. We have identified the other systems that will be stopped when GPS is fully operational and identified that to the Congress specifically as the cost savings that will be achieved there. Not everything disappears. Of course, you are not going to convince anyone to take out certain inertial platforms or things of that nature. There will be a number of things we will discontinue when GPS becomes operational.

Senator SCHMITT. Will you provide for the record missions and platforms of the three services for which GPS would be the primary navigation system?

Mr. LATHAM. Yes, sir.

Senator SCHMITT. And to the best of your ability in the long run what systems will be phased out.

Mr. LATHAM. Yes, sir, we can do that.

[The information follows:]

GPS PLATFORMS

GPS is expected to become the primary navigation aid on the following platforms:

Army: M-113 Armored Personnel Carrier; M-113 Fire Support Vehicle; M-577 Command Post Carrier; M-561 Gamma Goat; ¼ Ton Truck; High mobility multipurpose wheeled vehicle; M-60A3 Main Battle Tank; XM-3 Cavalry Fighting Vehicle; UH-I Huey; OH-58 Kiowa; CH-47 Chinook; EH-60 Blackhawk; RV-1 Remotely Piloted Vehicle; RC-12 Huron.

Navy: Virtually all surface ships and submarines and the following aircraft: P-3, A-6, F-14, F-18, E-2, H-53, AV-8, AH-1, CH-46, HMX, COD, S-3, SH-60, SH-3.

Air Force: Virtually all Air Force aircraft will ultimately become GPS-equipped. In addition, about 1000 manpacks will be acquired for ground forward air control operations.

The systems we expect to be replaced by GPS and the attendant annual cost savings are reflected in the attached chart.

Systems To Be Replaced by NAVSTAR GPS

	Phase Out		Annual Cost Avoidance[1]
System	**Start**	**End**	
AUTOMATIC DIRECTION FINDING (ADF) (LF)	1987	1996	$ 4.9
NON-DIRECTIONAL BEACON (NDB) (UHF) (Ground)	1995	1996	2.4
DIRECTION FINDING (DF) (UHF) (Navy Ground)	1995	1996	1.0
VERY HIGH FREQUENCY OMNI DIRECTIONAL RADIO RANGE (VOR)	1987	1996	4.6 [2]
TACAN	1987	1996	68.0
DISTANCE MEASURING EQUIP (DME)	1987	1996	.5
RAYDIST/ARGO/MINI-RANGER	1987	1996	3.5
LORAN	1987	1992	12.4
TRANSIT	1987	1992	22.8
OMEGA	1987	1996	14.0 [3]
ELECTRONIC ALTIMETER (High Altitude)	1987	1996	19.4 [2]
			$153.5

1. FY-81 dollars in millions, estimate based on FY80-FY82 experience. Cost includes RDT&E, acquisition, modification, reprocurement and O&M.
2. 40% of VOR/ILS and electronic altimeter costs are assumed saved when GPS replaces VOR and high altitude electronic altimeters.
3. Includes all Army, Air Force and 75% of Navy costs (certain Navy platforms plan continued use of Omega as a back-up system to GPS).

ALTERNATIVE RECOVERY SITES FOR SPACE SHUTTLE

Senator Schmitt. One more Shuttle question that I intended to ask earlier. Is the Air Force doing an evaluation of the need for alternative recovery sites for their Space Shuttle missions relative to the primary sites which would be Kennedy and Vandenberg, I presume?

Dr. COOPER. I don't know the answer to that, sir. I will be happy to provide that for the record.

Senator SCHMITT. I think the committee would be interested, I would personally be interested, to know what the Air Force evaluation of the White Sands Space Harbor site is relative to this mission.

Dr. COOPER. We certainly can get that for you.

Senator SCHMITT. And whether you have done an independent analysis of the weather accessability of the two coastal sites as well as Edwards.

Dr. COOPER. Yes, sir.

[The information follows:]

ALTERNATIVE RECOVERY SITES FOR AF MISSIONS

The Air Force has not performed "independent" analyses of the alternate or contingency landing sites for the Space Shuttle. We have participated actively in the NASA evaluations by providing data on weather and support facilities at our bases (like Hickam AFB in Hawaii), and by identifying our unique requirements (i.e., security) at the alternate landing sites. The NASA list of alternate/contingency landing sites includes White Sands; we consider all the currently named sites acceptable.

WHITE SANDS SITE

Senator SCHMITT. The final question is whether or not the White Sands site is considered to be accessible from a polar orbit or Vandenberg launch? I can't remember ever having seen that statement made one way or the other.

Dr. COOPER. I would be surprised if it weren't.

Senator SCHMITT. I would, too.

Dr. COOPER. Because the divert capability which was initially designed in the shuttle, which was not quite met, I think would be adequate to divert on a first orbit to White Sands.

I will check that for you.

[The information follows:]

WHITE SANDS ACCESSIBLE FROM POLAR ORBIT OR VANDENBERG LAUNCH

Accessibility of the White Sands site from polar orbit depends on the specific orbital conditions.

In the "abort-once-around" case from Vandenberg, the Orbiter can only return to Vandenberg. This is because the earth's rotation moves Vandenberg about 1000 miles east of its position at launch. Thus, when the Orbiter completes the first orbit (about 1½ hours after launch) its cross-range maneuvering capability is needed just to get back to Vandenberg. It is not possible to reach either Edwards Air Force Base or White Sands under the abort-once-around conditions.

Once in orbit, the ground track will pass within landing range of White Sands several times a day. A White Sands landing would be possible on those specific orbits should a contingency situation require landing.

Senator SCHMITT. I remember when we first started to look at landing sites that there was at least under the initial cross range requirements that White Sands was the once-around recovery site both out of Vandenberg and out of Edwards.

Dr. COOPER. Right.

Senator SCHMITT. Could you give us a quick analysis and any further information for the record that you might want to supply on the status of our current antisatellite capability, our efforts, development efforts?

Dr. Cooper. Yes, sir, current efforts are maturing very rapidly. There is a plan to test antisatellite systems for the first time in space later on this year.

I just recently reviewed the program in detail and all of the elements of the program the target program, the miniature homing vehicle, the mods to the aircraft and so on are progressing on schedule for that initial testing.

Senator Schmitt. Is it a totally success-oriented program? Are there any technological show stoppers in it or operational show stoppers?

Dr. Cooper. I think all the technology that is being employed there is well within the state of the art. It is the concentration of those technologies in a system level demonstration that I think is the only major concern that people have.

It is a complex operation. It requires careful coordination between the tracking systems, the on-ground computers and the onboard systems in order to be successful because it is a hit-to-kill vehicle.

So, it is the complexity of the system's operation that I think is the major concern now. The technologies that are employed there seem to be well in hand.

Senator Schmitt. What is the status of operational planning within the current satellite programs and projected programs for passive and maneuvering, avoidance of antisatellite systems?

Dr. Cooper. I don't believe we can talk about the details of that here.

Senator Schmitt. We can deal with that in a classified session?

Dr. Cooper. Yes.

Senator Schmitt. That is an effort, however, is that correct?

Dr. Cooper. Yes, indeed, we have substantial efforts.

Senator Schmitt. Is each system being evaluated in that concept?

Dr. Cooper. Yes, indeed.

Senator Schmitt. Thank you. We appreciate it.

SUBMITTED QUESTIONS

We will be back with you with some more questions for the record. I am sure we will talk about these one more time in the not too distant future.

[The following questions were not asked at the hearing, but were submitted to the Department for response subsequent to the hearing:]

ADDITIONAL COMMITTEE QUESTIONS

DOD OPERATING ITS OWN SHUTTLE PROGRAM

QUESTION: It has been claimed that DOD shuttle requirements are draining resources from NASA exploratory programs and that NASA is turning into a transportation support function for the Department. Should DOD move toward operating its own shuttle systems, including budgeting for orbiters?

ANSWER: As you may be aware, the DOD is currently participating in the OSTP Space Policy Study of the Space Transportation System (STS). This study is looking at far term management alternatives for the STS. Both NASA and DOD agree that in the near term there are a number of considerations that weigh against a transfer of STS operations responsibilities in whole or in part from NASA to the DOD. The STS is still undergoing a significant amount of development and will continue so for the next few years. The Air Force does not have the organic capability to replace NASA manpower or the resources to acquire them in the near term. We are already extensively involved in the STS program with our responsibilities to develop the Inertial Upper Stage and to acquire and operate the Shuttle facilities at Vandenberg AFB and the Consolidated Space Operations Center.

We do not have any plans to procure or budget for additional Orbiters. Under the NASA/DOD agreements, NASA is responsible for the procurement of Orbiters. We support the NASA funded acquisition of a fifth Orbiter to support the national requirements of the Shuttle and the maintenance of a capability to produce others as we gain operational experience with Shuttle. As mentioned earlier we are heavily investing in the Shuttle system and believe this investment is an equitable contribution for our projected use of the Shuttle.

"HOME PORT" ORBITERS AT VANDENBERG

QUESTION: Will there be a need to "home port" orbiters at Vandenberg in order to move them efficiently through their launch/landing cycles?

Have we seen the last of cost growth and schedule slippage with regard to this facility?

ANSWER: We do not expect it to be necessary to "home port" orbiters at Vandenberg. The orbiter fleet is generally intended to be interchangeable between Kennedy and Vandenberg. When launch rates are low, we expect to have periods where no orbiters are physically located at Vandenberg; an orbiter would be delivered in time to allow processing for the next launch. However, several practical operational considerations will probably limit the interchange of orbiters; these include:

a. The inability of orbiters 102 and 099 to launch certain Vandenberg missions due to their limited performance.

b. The operational benefits of minimizing orbiter reconfiguration (i.e., removing specialized cradles like those used for upper stages) will likely result in certain orbiters being effectively "dedicated" to a selected mission set like upper stage/payload deployment.

c. The unquantifiable, but real, benefit of having launch crews become familiar with the "idiosyncrasies" of a particular orbiter.

We cannot provide assurance that there will be no further cost or schedule problems at Vandenberg. The Space Shuttle Vehicle is still in its Research and Development phase; the Kennedy Space Center ground support systems (particularly the launch processing software systems) are still undergoing extensive change. The Vandenberg design directly depends on the NASA progress, particularly at Kennedy. In summary, we cannot provide any absolute assurances this early in the Space Shuttle system life cycle because there is still a significant opportunity for further changes as we learn from early Shuttle operations.

FULL COSTS OF NAVSTAR/GPS

QUESTION: The fiscal year 1983 request for R&D and procurement for the Global Positioning System totals about $240 million, with $290 million projected in 1984. What are the full costs of this program through full operational capability?

ANSWER: The Full Operational Capability (FOC) of the GPS System is planned for the fourth quarter of FY 1988. The full cost for the Air Force, Army, and Navy from FY 1983 to FY 1988 based on the President's Budget is projected at $3,164 million. This funds the initial 28 satellites required to establish the FOC as well as approximately 3,500 user sets.

Note: Shuttle and transtage (PAM-D) launch costs for these 28 satellites are $823 Million.

LESSONS LEARNED FROM NAVSTARS 1 THROUGH 9

QUESTION: The FY 1983 planned program includes replenishment satellites, NAVSTARS 10 and 11. This sounds like a mature program. What have we learned from NAVSTARS 1 through 9?

ANSWER: Based on the six Navstars successfully launched and operated in orbit, we have gained experience in the areas of satellite design, production and costing.

We have validated almost all our original design and production ideas with orbital operations since early 1978. The only significant problems occurred in the early rubidium time standards, the satellite borne atomic clocks which are the key to GPS precision. An aggressive two year reliability program starting in 1978 involving the clock support electronics, as well as the rubidium package itself, appears to have caught and corrected the early problems. We have not had a clock failure in almost two years.

In addition to learning that our basic design was suitable, we have also demonstrated the advantages of a stable production base. Except for the clock situation, our satellites have continued to perform well on orbit and should meet their design mission duration. We attribute much of this reliability to the continuity of the major and minor subcontractor team. Twenty two of the total of twenty eight subcontractors have provided flight hardware since the start of the program in 1974.

A historical cost, schedule and performance data base covering nine satellites over almost eight years with a relatively stable set of subcontractors has been created. Our ability to estimate the cost of GPS satellites has been demonstrated and improved. In summary, the acquisition of Navstar GPS satellites represents a mature effort with a successful record of performance.

APPLICATION OF GPS RESOURCE IN THE AREA OF TACTICAL GROUND FORCES

QUESTION: The application of GPS to positioning air and sea platforms seems clear enough. What application of the GPS resource can we expect in the area of tactical ground forces?

ANSWER: At Division level, Navstar user terminals will be deployed to elements of the cavalry squadron for reconnaissance; pathfinders of the airmobile division for combat assault operations; Combat Electronic Warfare/Intelligence (CEWI) battalion for surveillance and special missions; signal battalion for control of communications support; aviation elements of the cavalry squadrons and CEWI battalion for reconnaissance, surveillance and special missions; and to Nuclear Biological and Chemical (NBC) defense companies for chemical and radiological reconnaissance.

At Corps and higher levels, Navstar will be deployed to rangers, armored cavalry regiments, and special forces to support their unique functions; CEWI group for employment of radars, sensors and collection devices; air defense for control, operations and location of guns and missiles; combat engineer battalions for reconnaissance and mine employment; selected aviation assets for command and control, medical evacuation, and special missions, combat service support elements for coordination of logistics and maintenance and conduct of watercraft operations; and NBC defense for reconnaissance of contaminated areas.

With GPS, the soldier can locate himself on a world-wide common grid, in the most severe weather, day or night, in jungle canopy or mountain canyon. He can mass multi-service fire support on targets located by any means, which is essential for first-round fire-for-effect. He can navigate on the move without accuracy degradation over time or distance. GPS gives the soldier an order of magnitude improvement in his position/navigation capability.

DANGER OF GPS BEING KNOCKED OUT

QUESTION: Whenever a new generation system holds the promise of doing so much, the specter of over-reliance and vulnerability inevitably comes up. For instance, what is the danger of GPS being knocked out and our being left with nothing?

ANSWER: DoD is planning to have GPS replace several existing radionavigation systems (e.g. TACAN, LORAN, OMEGA, TRANSIT). GPS will not replace self-contained navigation systems (e.g., Inertial Navigation Systems (INS), radars). The vast majority of DoD weapon system platforms will have GPS and an INS working in concert to provide enhanced performance in wartime. Therefore, if GPS were "knocked out", we would still have self contained systems.

More important, it is extremely difficult to "knock GPS out". When operating with an INS, GPS users can accomplish their missions against the projected jamming threat. The number of satellites in the constellation, its 11,000 mile altitude orbits and satellite hardening features make GPS an extremely difficult system for any anti-satellite to even degrade, no less destroy.

IONDS Package on NAVSTAR/GPS

QUESTION: The subcommittee understands that a navigational and positioning breakthrough is only part of the NAVSTAR/GPS story.

It is also the vehicle for an Integrated Operational Nuclear Detonation Detection System (IONDS).

What is the requirement in this area, and what is wrong with our present capabilities?

ANSWER: The Integrated Operational NUDET Detection System (IONDS) program was established in response to validated operational requirements specified as follows:

- ADCOM ROC 4-77, "An Improved NUDET Surveillance and Reporting System", dated 19 August 1977.
- ADCOM/SAC Joint GOR 205-78, "Survivable Missile Attack and NUDET Surveillance Information", dated 9 November 1978.
- Measurement and Signature Data Requirement (MASDR) DT 72300B; DT 72302B; operate a network of appropriate sensors to detect, identify, locate, and characterize foreign nuclear events in all regions (space, atmosphere, and subsurface).

The existing network of ground and space-based nuclear detonation detection sensors does (deleted).

NAVSTAR/GPS APPLICATIONS

QUESTION: The Global Positioning System (GPS) is to provide real time, worldwide three-dimensional positioning for weapons platforms with an accuracy of 16 meters spherical error probable. How does this compare with systems currently operational both in and outside the United States?

ANSWER: The characteristics of major in-use navigation systems are provided below. Accuracy data is stated in terms of an elipse containing 95+% of the observations, unless remarked otherwise.

LORAN: Predictable 2 dimensional accuracy is on the order of 500 meters. This can be improved to 180 meters by calibrating the grid by photo reconnaissance. Repeatable and relative accuracy is about 100 meters. LORAN is not available everywhere and overseas transmitters are very vulnerable.

OMEGA: Predictable 2 dimensional accuracy is 3.7 - 7.4 Km and repeatable accuracy is 1.8 - 3.7 Km. The system provides 10 second updates over most of the world in 2 dimensions.

TRANSIT: A dual frequency receiver can obtain 25 meter accuracy and a single frequency receiver can obtain 500 meter accuracy. Coverage is not continuous, but fixes are available worldwide every few hours. Time to obtain a fix is too long for many tactical applications even when a satellite is available.

TACAN: Accurate to ± 1° in azimuth and 3% of distance from station.

VOR: Comparable to TACAN.

Radiobeacons: Bearing accuracy is 3-5°

Inertial Navigation Systems (INS): Accuracy is dependent upon time since the platform was last updated and the quality (cost) of the system. Commercial aircraft systems accurate to from 2-5 Km/hr are available. Some very high quality military systems are better.

Doppler: Accurate to 1-3% of distance travelled. 2-D.

Position and Azimuth Determining System: Accurate to about 5 meters when operating within a few miles of a survey point. 3-D.

Terrain Contour Matching: Accuracy is between 30-420 meters for specifically mapped land areas. 3-D.

FAA CERTIFICATION FOR GPS

QUESTION: Will the FAA certify GPS as an adequate navigation system for non-military aircraft operating within the United States?

ANSWER: In the long term, FAA is expected to certify GPS receivers for all navigation missions except precision approach. DoD policy restrictions on GPS accuracy and procedural interface problems with the air traffic control system will limit certifications prior to 1990, as discussed below.

National policy embodied in the Federal Radionavigation Plan is to degrade the GPS signal provided for civil use to 500 meters 2 drms. This measure describes the parameters of an elipse containing slightly more than 95% of the observations.

At 500 meters accuracy, GPS is more accurate than all existing enroute and area navigation systems, but less accurate than terminal systems. With proper receiver design, an 18 satellite constellation will provide a two dimensional fix anywhere, essentially 100% of the time. In light of these factors, the following certification actions are expected.

FAA will certify GPS for helicopter operations, oceanic en-route navigation, remote area navigation and area navigation in the United States as soon as equipment conforming to current or developing standards is presented for evaluation.

Certification of GPS for domestic and international operations on VOR airways presents interface problems with the air traffic control system. At 500 meters, GPS is much more accurate than required, but domestic airways constitute a relative navigation structure hubbed on VORs and enroute radars. As area navigation becomes more common (with or without GPS), air traffic control procedures will adapt to latitude/longitude reference rather than range/ bearing to a VOR.

In the interim, GPS receivers may have to emulate VOR by computing and displaying range and bearing to the VOR defining the air route being flown. DoD will work this issue as it must be resolved prior to removing VOR and TACAN equipment from DoD aircraft.

Certification of GPS for non-precision approach to instrumented runways is questionable in the near term. DOT defines the system accuracy requirement as ± 100 meters to a 95% confidence level. This corresponds to the accuracy of an on-airport VOR at the missed approach point.

About 30% of airports have an on-airport VOR and instrument approach procedures for these airports are designed around VOR capability. Procedures could be designed for a 500 meter system but this would raise approach minimums at some airports.

GPS will not be certified for precision approach. Even the military system fails to provide the angular accuracy of an Instrument Landing or Microwave Landing System. Except in primitive tactical situations, GPS has never been intended for use as a precision landing system.

FEES TO NON-MILITARY USERS FOR GPS

QUESTION: Will fees be charged to non-military users? How would a fee system be administered?

ANSWER: A DoD policy is in the final stages of staffing, which calls for charging non-military users a fee. A GPS User Charges Working Group has been chartered to determine the feasibility of implementing such a policy and the means of administering it. The draft policy has these essential elements.

Precise Positioning Service (PPS). Users showing a need in the national interest and able to meet DoD security restrictions would be issued DoD cryptographic materiel. Users would pay all direct costs plus an annual fee of about $3800. The GPS Security Panel is developing criteria to determine how many, if any, civil non-governmental users will be authorized PPS access.

Standard Positioning Service (SPS). It appears feasible to encrypt portions of the navigation data message in a low security commercial cryptographic system. For an annual fee determined by market factors (preliminary estimate is $380/yr) users would be issued a key whenever the cryptovariable is changed.

SPS security need only be tight enough to cause a user more inconvenience in lost service than the difference in cost between government and expected "black market" sources is worth. A non-DoD federal agency or contracted private organization would manage distribution and collection.

BENEFITS OF GPS TO OUR ALLIES

QUESTION: Can we extend the benefits of GPS to our allies and deny them to our adversaries.

ANSWER: GPS is designed to allow selective access to precise GPS accuracies to users equipped with appropriate keys. The US can provide keys to allied as well as US forces.

COST ANALYSIS IMPROVEMENT PROGRAM TO FIRM UP AF PROJECTIONS

QUESTION: Is anything being done under the Cost Analysis Improvement Program at the OSD level to firm up the Air Force projections of cost for this program?

ANSWER: There are no ongoing actions within OSD to validate Air Force cost projections. A thorough, independent cost analysis will be performed prior to the next major milestone review to be held in 1984.

CLOSER TO THE ORIGINAL 24 SATELLITE CONSTELLATION

QUESTION: Twenty-eight NAVSTAR satellites will be procured under the procurement contract to be signed in the next few months. In addition to six programmed against losses in launch or through early failure, there will be four replacements. Will the spares be on orbit? If so, will they be turned on? If so, are we getting back to where we are closer to the original 24 satellite constellation than we are to the now approved 18 satellite constellation?

ANSWER: The actual breakout of the 28 satellite buy is: 18 operational satellites; 3 satellites lost due to launch or other failure; 3 spares; 4 satellites to replenish the 18 satellite constellation as the first satellites launched end their mission life.

The three operating spares will be launched to ensure 98% availability of the GPS signals to users.

Before the GPS program was restructured, eight spares were programmed to augment the 24 satellite constellation. These spares were also required to maintain high system availability.

Therefore, the net effect of the restructuring has been a reduction from 32 on-orbit satellites to 21.

RECONFIGURE THE SYSTEM TO A 24 SATELLITE CONSTELLATION

QUESTION: Assuming the 18 satellite constellation is deployed exactly as now planned, what would have to be done to reconfigure the system to a 24 satellite constellation?

ANSWER: The constellation will consist of six planes, each with three operational satellites. Every other plane will also have a spare satellite. To reconfigure to a 24 satellite constellation, we would launch one additional satellite into each plane, improving GPS accuracy to 10 meters Spherical Error Probable. We would retain the on-orbit spares to help ensure availability of the improved accuracy.

PLAN TO FUND THE INITIAL NAVSTAR CONSTELLATION

QUESTION: What lies behind the plan to fund the initial NAVSTAR constellation under a termination liability block of funds appropriated for the Integrated Operational Nuclear Detonation Detection System (IONDS)?

ANSWER: The Air Force plans to acquire the initial Navstar satellite constellation using a termination liability funded block buy starting in fiscal year 1982 with $20.1 million (M) of reprogrammed funds (including $16.0M from IONDS). The block buy contract with a total value in excess of one billion dollars will include 28 GPS/IONDS satellites, and the transtage vehicles necessary to inject them from the shuttle to 11,000 mile orbits.

IONDS is a payload on Navstar satellites. Therefore, all funds required to produce the satellites and transtages are included in the block buy. The block buy approach saves IONDS $48.8 million over the annually funded approach.

SERVICE USE OF DSCS

QUESTION: The capabilities of the DSCS system for long-haul communications and the Navy's FLTSAT system seem to overlap. Why can't one satellite communications system satisfy all service requirements?

ANSWER: DSCS and FLTSAT/AFSAT satisfy different service needs. DSCS satisfies point to point, long-haul, wide band communications. FLTSAT/AFSAT provides tactical and strategic communications. All services use both satellite systems to satisfy these different needs.

NAVY USE OF DSCS

QUESTION: If the Army and Air Force can live with DSCS, why can't the Navy?

ANSWER: DSCS and FLTSAT/AFSAT satisfy different needs. The Navy can and does use DSCS for all its point-to-point, long-haul, wide-band communications and selected Flagship ship to shore communications. In addition, Navy will use DSCS III for SURTASS ship to shore connectivity. FLTSAT/AFSAT provides strategic communications for Navy and Air Force and serves the need for tactical communications of all services, DOD, Joint Task Forces and the White House Communications Agency.

DEFENSE SATELLITE COMMUNICATIONS SYSTEM (DSCS)

QUESTION: Between R&D and Procurement, the Air Force proposes to devote about $250 million to the DSCS III program in FY 1983, including a possible demonstration satellite launch by the end of this year. Why do we need another generation of communications satellite operating in the same frequency range as DSCS II?

ANSWER: Since DSCS II satellites were designed in the late 1960s, the operational threat, both nuclear and electronic, and user requirements have dramatically changed. The DSCS III satellites are designed to overcome DSCS II operational limitations and to ensure essential communications connectivity during the most probable threat. DSCS III satellites will satisfy the increasing communications requirements of our users some of which are solely dependent on DSCS III capabilities. They provide an improved throughput capacity by increasing total output power and utilizing six transponders which allows users with similar requirements to be grouped into separate transponders. Also, DSCS III satellites are specifically designed to counter the electronic jamming threat by using a multiple-beam antenna (MBA) with the ability to detect, locate and null jammer sources. To assure satellite and MBA control during jamming, a separate encrypted, antijam protected command link is included. In addition, the DSCS III satellite is designed to meet the current Joint Chiefs of Staff criteria for nuclear survivability (deleted). These unique features of the DSCS III satellite substantially improve our capability over DSCS II satellites to meet user requirements in crisis and conflict situations.

DSCS ANTIJAM CAPABILITY

QUESTION: The DSCS III satellites will use specially designed antennas to counter the effects of jammer signals. Will this antijam system be effective against many widely dispersed tactical jammers, as opposed to large, fixed solitary jammers?

ANSWER: Yes, the DSCS III antijam system is designed to operate effectively against widely dispersed tactical jammers as well as large, fixed solitary jammers. Extensive ground tests have been conducted to verify the performance of this design to counter electronic attacks from tactical jammers.

QUESTION: Is it fair to say the antijamming techniques we are trying to make work in the DSCS III SHF range are more appropriately applied in the EHF range of other satellites now in the pipeline?

ANSWER: No. The DSCS III antijam techniques are appropriate at both SHF and EHF frequencies. Although EHF satellites are being considered for development for use in the late 1980s, these satellites will satisfy only a selective portion of the DoD tactical and strategic user community. DSCS III satellites are designed to satisfy wideband, tactical, and strategic requirements; and will continue to satisfy wideband and other user needs once an EHF capability exists. Extensive ground tests, which exercised the DSCS III nulling capability against a wide range, type, and number of simulated jammers, were used to verify the DSCS III antijam techniques.

FY 83 AND FUTURE COST FOR DSCS III TACTICAL CAPABILITIES

QUESTION. As originally envisioned, the DSCS III satellite was to be able to support tactical deployments. Now it appears there would be insufficient power for multiple narrow beam applications. What are the fiscal year 1983 and future costs associated with the multiple beam antenna/tactical communications feature?

ANSWER. The current complement of interconnected antennas and available satellite power can satisfy the known requirements of both fixed and mobile/tactical users. The FY 1983 and future costs associated with the antenna and power subsystems on the DSCS III are not separately costed. These costs are included in the DSCS III production costs.

DSCS III TACTICAL CAPABILITIES

QUESTION: Couldn't we have done just as well with modified or multiple DSCS II's?

ANSWER: The power potentially available from either DSCS III or DSCS II satellites, directed to a concentrated tactical terminal deployment in a benign environment is essentially equivalent. However, DSCS III is a superior satellite for tactical applications since its multiple beam antennas provide the flexibility for concentrating satellite power simultaneously to several deployment areas (deleted). Tactical communications through DSCS II satellites will be severely curtailed during jamming. During the early concept design phase of the DSCS III program, a modified DSCS II satellite alternative was examined but it fell far short in providing DSCS users including the tactical community the anti-jam protection afforded by DSCS III against multiple jammers. Multiple DSCS II constellations are also vulnerable to multiple jammers (deleted).

ALTERNATIVES TO DSCS III

QUESTION: Could we have achieved the same communications capacity through the launch of upgraded DSCS IIs at less cost?

ANSWER: The communications capacity of the DSCS III satellite is about twice as great as that of the DSCS II spacecraft in a benign environment. This comes about because of the greater number of channels in the DSCS III satellite which provides more total power for communications and allows a more power-efficient grouping of users among the channels. Under severe jamming attacks, the DSCS III provides minimum essential communications for critical military command and control functions (deleted).

QUESTION: Could more DSCS II's in orbit have served to defeat the jamming and tactical communications problems?

ANSWER: An adversary's jamming attack against DSCS satellites most probably would consist of jamming from a multiplicity of jammer terminals. (Deleted) a proliferation of DSCS II satellites can be defeated by multiple jammers. More DSCS II satellites in orbit would certainly have the potential for providing more communications in a benign environment but would require an undesirable and possibly inflexible division of tactical communications into separate networks served by each satellite. Tactical satellite communications capacity problems in either benign or stress environments are best solved through improvements in tactical unique earth terminal equipments and not by placing further burdens on the DSCS spacecraft. Ground terminal capacity improvements include, use of larger antennas, employment of time efficient multiple access techniques, digitizing voice at lower data rates and combining communications with low-rate digital multiplexers.

DSCS PROGRAM CUTS

QUESTION: The Senate Armed Services Committee is recommending that the procurement funds for DSCS III be reduced by $25 million in 1983, while the R&D funds would be fully authorized. What effect would this reduction have on DSCS III deployment as presently envisioned?

ANSWER: The $25 million reduction recommended by the Senate Armed Services Committee would prohibit the acquisition of two additional DSCS III production satellites. Based on our current deployment strategy, a single satellite acquired in FY 1983 could not be launched until FY 1988. This is caused by the fact that DSCS satellites are launched in pairs and another production satellite would not be available until that time. With this delay, there is about a 70 percent probability that less than four satellites will be fully operational by FY 1988. As a result communications in at least two geographical areas would be severely curtailed or disrupted.

USE OF EXCESS DSCS CAPACITY

QUESTION: The DSCS system provides long-haul voice and data communications throughout the world. It supports the National Command Authorities, the Worldwide Military Command and Control System, the Defense Communications System, the Diplomatic Telecommunications Service, the White House Communications Agency and mobile forces of all services. Why aren't we at a point where the United States Government could handle all of its own international communications?

ANSWER: Under the provisions of the Communications Satellite Act of 1962 (Title 47, United States Code, Section 701, et. seq.) use of the DSCS is effectively limited to satisfying unique governmental needs or other national interest requirements. Long standing Executive Branch policy implementing the applicable statutory provisions has, therefore, limited the DSCS, as a integral part of the Defense Communications System, to provide service for the critical users which cannot be satisfied by international commercial carriers and submarine cable systems. Moreover, while the DSCS provides redundant communication paths for some command and control to ensure survivability through proliferation, the DSCS System is not sized to handle all United States Government international communications.

QUESTION: Will the enhanced DSCS system allow us to cut back on duplicate capacity leased from commercial carriers?

ANSWER: Capacity leased from commercial carriers is not duplicative. The enhanced DSCS system will provide improved survivable communications protected against electronic jamming and nuclear effects. It is sized to accommodate the existing growth in wideband and tactical requirements while providing a capability for strategic force control. DSCS will not have the capability to include the communications normally satisfied by leased terrestrial and cable systems.

MILITARY STRATEGIC TACTICAL AND RELAY SATELLITE (MILSTAR)

QUESTION: Going to EHF for strategic communications will necessarily involve developing new ground terminals compatible with the satellite links. What type of cost buildup for terminal development and procurement will occur in the out-years of the MILSTAR program?

ANSWER: At this point in the program costs for EHF terminals which have not yet been designed are very difficult to predict. In FY 1982-88 the Army, Navy and Air Force have budgeted about (deleted) respectively, for terminal development. The Air Force figure is substantially higher than the other Services because they must have satellite control terminals as well as force element terminals.

Estimates for production costs are even more difficult. To date, unit cost estimates vary from $.5 million to $1.5 million. A more precise number depends on the numbers procured, the type of design, inflation and many other factors. For planning purposes the FY 1984-88 procurement budget for MILSTAR terminals is (deleted) for the Navy, (deleted) for the Army and (deleted) for the Air Force. The Navy figure is low because they plan to acquire (d) terminals with R&D funds; the Air Force figure is high because they must also have satellite control terminals and force element terminals. While some preliminary estimates have been made, it is difficult to predict precisely how many terminals we will be able to buy with these funds or how many terminals we will eventually buy throughout the life of the program.

PROJECTED COST BUILDUP IN R&D AND PROCUREMENT FOR MILSTAR OPERATIONAL CAPABILITY

QUESTION: The Senate Armed Services Committee has recommended that $50 million be added to the requested $80 million for MILSTAR research and development. The intent is to support an accelerated IOC date. How could this additional $50 million be used to accelerate the program?

What is the projected cost buildup in R&D and procurement through to a full MILSTAR operational capability?

ANSWER: If added, the $50 million would be used to maximize the work performed by the MILSTAR contractor during FY 83. In particular, it would allow the MILSTAR contractor to place early orders for parts. Experience indicates that certain types of parts must be ordered early or delays will be experienced when the time comes to assemble and test the spacecraft.

The projected cost buildup for the MILSTAR program will be somewhat more than that provided in the President's Budget, if we are to meet the full range of requirements with a first launch in (d). We are currently involved in extensive contractor trade studies on MILSTAR, and we will have refined costs by the Fall of 1982.

MILSTAR REPLACEMENT OF OTHER SYSTEMS

QUESTION: MILSTAR is intended to provide worldwide communications for the tactical and strategic forces of all services. What part of our current satellite communications lineup will be effectively replaced by MILSTAR?

ANSWER: The principal users of the Military Strategic Tactical and Relay system program will be the Strategic/Nuclear Capable Forces and the Tactical/Mobile (non-nuclear) Forces of the Army, Navy, Marine Corps and Air Force. The Nuclear Capable Forces are currently served by the Air Force Satellite Communications transponders on Fleet Satellite spacecraft in equatorial orbit and by the (deleted).

Both of these systems operate at Ultra High Frequency (UHF) and are particularly vulnerable to electronic jamming and (deleted). For the function of Emergency Action Message (EAM) dissemination, these vulnerabilities are somewhat alleviated in the near-term by the incorporation of single channel transponders (SCTs) on DSCS-III and multi-channel transponders (MCTs) on classified hosts. However, other missions such as (deleted) are in critical need of improved physical and electronic survivability. Using UHF, it will be impossible to provide them with reliable communications. By the early 1990s Air Force Satellite Communications System on Fleet Satellite and (d) will be replaced by the MILSTAR system which is designed to meet the evolving threat.

The Tactical/Mobile Forces are served in the near-term by the FLTSAT and Leased Satellite Systems (LEASAT). FLTSAT will provide the warfighting capability for these forces, while LEASAT is required to provide additional peacetime capacity. Once again, the evolving threat has placed severe limitations on the capability of these systems to operate in a wartime environment. By 1990, MILSTAR will assume the primary role of supporting these forces in a wartime environment. It is anticipated that LEASAT will be replaced with other leased service to provide continued peacetime communications for users of unprocessed UHF.

STRATEGIC C^3 BUDGET

QUESTION: You state $2.8 billion is for C^3 programs. How is this funding allocated in the FY 1983 defense budget? How does it compare with FY 1982 funding? Please provide a breakdown for:

Procurement
RDT&E
Operations & Maintenance
Personnel

ANSWER: The FY 1982 and FY 1983 funding breakdown and comparison for Strategic C^3 is as follows:

($ in Millions)

Appropriation	FY 1982	FY 1983	Δ	% Change
RDT&E	$ 642	$ 898	$+256	+40%
Procurement	915	921	+6	+1%
MilCon	10	20	+10	+100%
O&M	678	746	+68	+10%
MilPers	247	287	+40	+16%
Totals	$2,491	$2,871	$+380	+15%

This 15% increase in funding from FY 1982 to FY 1983 for Strategic C^3 represents total growth. When inflation is accounted for, there is not much real growth between FY's 1982 and 1983. Strategic C^3 personnel increased from 16,214 in FY 1982 to 16,868 in FY 1983. This is an increase of 649 spaces, which represents a 4% increase in personnel.

QUESTION: What new activities or program changes are responsible for this increase over FY 1982?

ANSWER: The following programs are responsible for most of the FY 1983 increase in the Strategic C^3 area:

Defense Support Program (DSP)
PAVE PAWS
DEW Line Radars
CONUS OTH-B
MILSTAR
Minimum Essential Emergency Communications Network (MEECN)

STRATEGIC C^3 PROGRAMS

QUESTION: In October, the CBO estimated the 10 year cost of improved C^3 system responsiveness and endurance would be $17.8 billion, or an additional $3.9 billion over the cost of the previous system. What is the ten-year estimate of the cost of the program you are initiating?

ANSWER: The FY 1983 budget request for Strategic C^3 programs is $2.8 billion. The cost of these Strategic C^3 programs projected over the five year period for FY's 1983 to 1987 is approximately $18 billion in constant FY 1983 dollars. We are in the process of analyzing our requirements and projecting our costs over the out-years to a greater extent. However, until this study is completed, we can't really provide a reliable ten-year estimate.

MODERNIZATION INITIATIVES IN THE FY 83 REQUEST FOR BMEWS

QUESTION: What modernization initiatives are included in the FY 1983 request for the Ballistic Missile Early Warning (BMEWS) systems? How will this modernization initiative improve our attack assessment and warning capabilities?

ANSWER: In FY 1981 and FY 1982 the Congress approved funds for the modernization of the Ballistic Missile Early Warning System (BMEWS) radars at the Thule and Fylingdales sites. Planned modifications to the detection and tracking radars and expansion of the computational capacity at these sites will improve (deleted). capability.

TWO NEW PAVE PAWS SLBM

QUESTION: The C^3 budget includes a $68.4 million proposal to construct two new PAVE PAWS SLBM (submarine launched ballistic missile) radar installations. Would construction of these two new SLBM radars effectively deny the Soviets the capability of making an undetected SLBM launch from the ocean areas of the southeast and southwest U.S.? Do coverage gaps in these areas now exist?

ANSWER: The FY 1983 President's Budget contains $69.4 million for the first of the two new PAVE PAWS sites. The second site is programmed for FY 1984.

The PAVE PAWS radars reinforce the SLBM launch detection capabilities of the satellite early warning system (SEWS), and serve to confirm launch data by detection of the SLBMs in flight and can provide refined attack characterization information. Although there is currently SEWS detection coverage of potential launch areas to the southeast and southwest, there are large gaps in the radar backup coverage and attack characterization capability in these areas.

WWMCCS

QUESTION: Please outline for the subcommittee the extent of our operational problems with the Worldwide Military Command and Control System (WWMCCS).

ANSWER: The principle operational problem in WWMCCS ADP continues to be the inability of the WWMCCS Intercomputer Network (WIN) to fully support the spectrum of requirements. Broadly stated, the two problem areas are WIN software and the communication message switches which are both remnants of the prototype equipment tested in 1974. State-of-the-art improvements are planned to completely resolve deficiencies within the next (deleted). Previously identified problems such as those documented by Joint exercises during intentionally stressed conditions are receiving high priority attention both to develop solutions and to improve network performance. Specific recent WIN improvements include an upgrade in connectivity to the European theater by changing a satellite circuit to a terrestial circuit (undersea cable), the addition of another satellite circuit to the Pacific theater, and the successful resolution of the connectivity problem to Korea. In addition, the first major software revision in five years became operational on 18 April 1982. Verification of the extent to which these solutions have been effective must wait on the next large exercise later this year. Planned near term network improvements include the reconfiguration of the communications subnet, replacement of the current interface message processor with recently available C30 message switches, and further upgrades to both the European and Korean connectivity. The overall trend in the performance of the WIN has been towards steady improvement. This improvement is a step by step process that is leading directly to increased operational support to the CINCs and the National Command Authorities.

QUESTION: Do WWMCCS hardware and software meet North American Air Defense Command (NORAD) requirements?

ANSWER: The present NORAD requirements have been satisfied with the existing WWMCCS hardware and software. However, to meet these requirements extensive modification to the operating system software was mandatory. As a result, the software that supports the NORAD Cheyenne Mountain Complex (NCMC) is unique, and requires significant revision to incorporate minor changes in NCMC, user, or sensor configuration. This software complexity, prompted by the use of standard WWMCCS hardware, has constrained the overall processing capability, flexibility, and growth potential for the NCMC. However, steps to improve the system are planned and budgeted in this and successive years. Some of the improvements made last year include upgrading the five largest online computers which handle about 95 percent of NORADs processing requirements. Additionally, due to the recognized extreme importance and complexity of their computer product, NORAD was granted an exemption last year from buying future standard WWMCCS computers.

NORAD SYSTEM MALFUNCTION

QUESTION: Given the extent of modernization required in our WWMCCS system, are you expecting that future NORAD system malfunctions may occur again? Are you confident that even if a malfunction does occur, on-going system improvements and U.S. military personnel can accurately assess all false alarms without precipitating a nuclear exchange?

ANSWER: The NORAD ADP requirements are being addressed within the WWMCCS Information System (WIS) modernization program as a separate family of functions to be independently modernized. The Air Force is pressing foward with this program as a high-priority effort. We do not expect a repetition of the highly publicized false missile warnings which occurred in 1979 and 1980. The false missile alert of November 9, 1979, was due to the inadvertent introduction of test data into the operational computer system. An off-line test facility has now been established which is totally isolated from the operational system. The false alerts of June 3 and 6 of 1980 were traced to a faulty communications chip. Error correction codes have been implemented to correct the problem of faulty communications chips causing a false missile alert. As with any system, malfunctions can and do occur. We are confident, however, that system redundancy, procedures and personnel will continue to provide proper malfunction assessment. The November 1979 incident presents a good case in point. At that time, a portion of a recorded test scenario was erronously transmitted outside NORAD to a number of other commands and agencies. The entire system has several built-in checks and redundancies. Because of these, the test data were almost immediately recognized as spurious. All command levels demonstrated entirely proper responsibility in handling the data. No strategic nuclear units took any steps toward advanced alert. All commands had unambiguously and correctly identified and confirmed the data as false in less than six minutes. Our procedures to evaluate the missile launch indication proved to be effective, fast and correct.

While no one can guarantee perfect system operation, we have improved and are continuing to improve system reliability and procedures to guard against unanticipated events which could generate false alarms. When and if such alarms do occur, redundant checks and planned human intervention at discrete points in the process ensure that false indications are quickly identified.

CONCLUSIONS OF DoD NORTH AMERICAN DEFENSE MASTER PLAN

QUESTION: The Air Defense Master Plan has now been submitted to Congress. What are its principal conclusions?

ANSWER: The DoD North American Air Defense Master Plan clearly concludes that the present air defense system (deleted). The plan calls for immediate action, commencing in FY 1983, to improve the (deleted) defense network by acquiring new radars for the distant early warning (DEW) line (deleted) (deleted) of the northern attack routes. In addition, over-the-horizon backscatter (OTH-B) radar systems will be required to provide surveillance of the east, west and southern boundaries of North America. The OTH-B, in conjunction with the DEW Line radars, will provide a (deleted).

These random patrols provide surveillance uncertainty to the Soviet planner, and thus a deterrent to Soviet attack. In addition, the AWACS aircraft will provide survivable wartime surveillance and C^3 for the NORAD air defense missions. Finally, the modernization of the air defense fighter squadrons with the new F-15 will provide credibility that the U.S. is capable of engaging a bomber attack with a modern fighter that is properly equipped with radars, weapons and range.

Technical Feasibility Test for OTH-B Radars

QUESTION: The Air Force is requesting $79.2 million for upgrading the experimental CONUS Over-the-Horizon Radar to a fully operational system. OTH Backscatter radars will replace present line-of-sight radars. Were the technical feasibility tests performed for this system in 1980 satisfactory?

ANSWER: Yes, the performance tests conducted during 1980-1981 clearly demonstrated the technical feasibility of the OTH-B radar concept. Following is a summary of the test results.

a. Aircraft detection, track, and correlation techniques were successfully demonstrated.

b. Performance in an ECM environment was evaluated. (Deleted).

c. Performance was assessed in regions of aurora-induced ionospheric disturbance. Reduced performance at night was determined to be confined to the north-looking direction.

d. Detection of (deleted) targets was demonstrated.

e. System positional accuracy (absolute location of unknown aircraft) was determined to be (deleted).
This accuracy easily meets requirements for vectoring interceptors to targets.

OTH-B COVERAGE

QUESTION: How much coverage would OTH-Backscatter provide? How does this compare with the line-of-sight radars?

ANSWER: The coverage of line-of-sight radars is determined by a number of factors including target altitude, terrain features in the vicinity of the radar and atmospheric ducting effects. Under ideal conditions, targets at altitudes of 10,000 feet can be detected at ranges out to 120 nautical miles. As the target moves higher in altitude, the range detection increases.

The OTH-Backscatter radar would provide all-altitude coverage from 500 miles out to approximately 1800 nautical miles. Wide area coverage of 180 degrees in azimuth is planned for the east and west coasts and 120° for the south-looking system.

UTILITY OF A NORTH-LOOKING OTH-B

QUESTION: Cost estimates for this system are based upon east coast-west coast coverage. What analyses have been made to determine the utility of a north-looking OTH-Backscatter Radar?

ANSWER: During FY 1981, analyses and experiments were conducted to determine the utility of north-looking OTH-B radar. Results showed that ionospheric disturbances caused by the nighttime aurora made the type of OTH-B radar planned for coastal coverage not operationally acceptable for direct north-looking surveillance during predictable periods of outage. Such outages can affect coverage into northern Canada. Use of the coastal-type

OTH-B radar for northerly surveillance would require extensive supplementary means for surveillance during the outage periods.

DEW UPGRADE

QUESTION: Is the DEW Line still viewed as the most cost-effective approach for northern coverage?

ANSWER: The Improved DEW Line is the most available low-technical-risk approach for achieving a northerly surveillance barrier which provides adequate warning time of the air breather threat.

ACQUISITION COST FOR DEW UPGRADE

QUESTION: Another C^3 program is the Distant Early Warning (DEW) Radar Station upgrade. This program should remedy classified deficiencies in our air defense coverage in the north. What is the total acquisition cost for this DEW upgrade?

ANSWER: The total acquisition cost of the DEW Line improvement program is estimated to be $443 million (then-year $).

CONFIDENCE IN ACCURACY OF THE NEW START OF DEW RADAR STATION

QUESTION: How confident are you in their accuracy, given the fact that this is a new start?

ANSWER: The Air Force is confident that our program estimate of $443 million (then-year $) is accurate.

Our confidence is based on several factors. First, the DEW Line improvement program is judged to be of minimum technical risk.

Second, although the DEW Line upgrade is a new start, we have recent radar development cost experience from the SEEK IGLOO program to draw upon. The AN/FPS-117 radar developed by SEEK IGLOO, for modernization of Alaska's Aircraft Control and Warning network, will also be deployed on the DEW Line for long-range surveillance.

Third, we have cost information and estimates obtained from industry that confirm Air Force estimates.

Major Increase in the FY 83 Program for IONDS

QUESTION: DoD is developing a sensor system called Integrated Operational Nuclear Detonation Detection system (IONDS), which would be carried on NAVSTAR/GPS satellites. IONDS will provide information about the actual size and targets of a Soviet nuclear attack. The FY 1983 budget request for IONDS is $19.9 million. The FY 1982 budget was only $7.0 million.

Why is there a major increase in the FY 1983 program?

ANSWER: FY 83 was the first year that sufficient funding could be programmed to support IONDS development efforts. Funding requirements were identified for the FY 81 Supplemental ($4.0M), the FY 82 Budget Amendment ($7.0M) and the FY 83 POM ($19.9M). The FY 82 funding is being used to develop a satellite-to-satellite data cross-link for IONDS data. The FY 83 funding continues that effort plus initiates development of a prototype ground/airborne user terminal and development of an enhancement to IONDS nuclear detonation location accuracy.

CURRENT SACDIN ACQUISITION COST ESTIMATE COMPARED WITH INITIAL ESTIMATE

QUESTION: The Strategic Air Command Digital Network (SACDIN) will give the Strategic Air Command an improved data communications capability. Large cost growth has been occurring in the program. What is the current SACDIN acquisition cost estimate, and how does that compare with the initial estimate?

ANSWER: The current SACDIN acquisition cost, in then-year dollars, is expected to be approximately $276 million. The original estimate in 1978 was $204 million. In constant 1977 dollars, the original cost was estimated to be $146 million and the current estimate is $178 million. The maturity of the program is now such that we believe future program costs will not deviate significantly.

FY 83 BUDGET REQUEST FOR R&D RELATED TO E-4 AIRBORNE COMMAND POST

QUESTION. The FY 1983 budget request for research and development related to the E-4 Airborne Command Post is $24.0 million. How much of this increase is related to new projects, such as the Single Channel Transponder, in the Block II modification effort?

ANSWER. $18.8 million in FY 1983 is related to Block II efforts, such as the Single Channel Transponder injection capability and Multiple Super High Frequency Satellite Communications Channels.

Mobilie Command Center

QUESTION: There is $5 million in the Army R&D budget for initiation of Mobile Command Centers. What is the estimate for the total acquisition cost of this program?

ANSWER: The original estimated acquisition costs for Mobile Command Centers was projected at $1,302, 200,000, programed from FY 84-FY88. Because of the urgency for a Mobile Command Center these costs were programed for planning purposes. An operational and organizational (O&O) concept is now being developed. More valid costs will be available when this concept is completed and we know how much equipment will be needed to perform this mission.

QUESTION: How essential is the mobile operational C3 system as a valid military requirement?

ANSWER: Since the Airborne Command Post System has limited airborne endurance, the Mobile Command Center (MCC) should be developed as a complimentary capability to provide the connectivity endurance necessary to provide the battle staff support of the National Command Authorities (NCA) for reconstitution of forces and assistance to civil recovery after the airborne assets are required to land. Because the survival of a single command center cannot be guaranteed, a mobile family of modular equipment sets is the alternative course of action being proposed. The MCC program will provide the proliferation, mobility, and data processing capabilities required for force direction as well as all command and control functions (e.g., reconstitution of forces and assistance to civil recovery) to support the NCA. We envision that the Command, Control, and Communications (C3) system required will consist of several MCCs, augmented by available airborne C3 assets and acting as an integrated C3 system. Thus the MCC System is absolutely essential for the NCA to successfully carry out their role as head of the military.

NORTH AMERICAN AIR DEFENSE PLAN

QUESTION: Please provide the unclassified joint policy statement on the air defense of North America for the record.

ANSWER: Coincident with the recent renewal of the NORAD agreement, Canada and the U.S. published the following Joint Policy Statement on the Air Defense of North America, which reflected the concept that the two countries should be considered as a single entity for purposes of air defense.

JOINT POLICY STATEMENT ON THE AIR DEFENSE OF NORTH AMERICA

Introduction. Canada and the United Statess continue to be exposed to a threat of attack by aircraft and air-breathing missiles which remain potent and flexible components of the Soviet arsenal. In order to deter the use of these forces against North America, the United States and Canada will continue to cooperate, within the framework of the North Atlantic Treaty, in the air defense of the continent and its oceanic approaches.

Objectives. Canada and the United States will maintain jointly an air defense system capable of providing tactical warning and attack characterization, (i.e., threat assessment and analysis) of limiting damage to strategic retaliatory forces and C^3 nodes, and of exercising control of peacetime access to continental airspace. The system will be capable of providing timely, reliable and unambiguous attack warning to a level sufficient to support the survival of strategic forces located in North America. The forces assigned to provide tactical warning and attack characterization will also be employed to control access to continental airspace and, if necessary, to engage attacking forces. In addition, air defense force planning will include provision for augmentation in crisis situations by appropriately trained and equipped general purpose forces. The system will provide a hedge against future enhancement of Soviet long-range bomber capability and long-range cruise missile development and deployment.

Joint Planning
. The United States and Canada will continue joint planning in air defense matters, will negotiate sharing of responsibilities, and will cooperate in research and development to achieve the necessary modernization and future modification of the air defense forces of both countries.

Conclusion. In order to contribute to the deterrence of an attack on North America, there will be a continuing requirement to maintain a prudent minimum level of air defense capability within a system structured to be adaptable to changes in the threat and to advances in technology. Canada and the United States believe that their joint air defense objectives must be attained and joint planning goals fulfilled in order to assure the required level of air defense capability. That level should be attained as soon as practicable and maintained for as long as is needed.

RANDOM BASING OF AN E-4B

QUESTION: Are U.S. C^3 facilities now vulnerable to a precursor bomber attack?

ANSWER: Yes. Because of major gaps in low-altitude and coastal airspace surveillance coverage, the existing systems (deleted).

NORTH AMERICAN AIR DEFENSE PLAN

QUESTION: To what extent are our air defense components hardened to blast and the effects of electromagnetic pulse?

ANSWER: The only air defense elements hardened against blast effects are the NORAD Command Post in Cheyenne Mountain and the (deleted). All other fixed North American air defense command facilities are soft. Communications links such as the NORAD Alerting System and the Weapons Alerting System use commercial networks which are vulnerable to electromagnetic pulse effects of nuclear detonations as well as blast effects. AWACS and air defense fighters are vulnerable to destruction on the ground. (Deleted).

QUESTION: What is the future role of AWACS in our North American air defense plans?

ANSWER: Beginning in FY (d) AWACS will be used on (deleted) patrols (deleted). Some of these patrols may be conducted in conjunction with AWACS training activities. These patrols will continue until the ground-based radar surveillance barrier is (deleted).

Cost Growth in Prototype Miniature Air Launched System Contained

QUESTION: The Air Force Space Defense Systems program, which supports the anti-satellite (ASAT) development program, is budgeted for $211.8 million in FY 1983. Last year, DoD informed Congress that this program experienced a serious cost over-run of over $100 million, which it intended to spread out over 4 years. This increase was initiated in an FY 1981 reprogramming action that this subcommittee approved only after raising serious questions as to Air Force procedures for commiting itself to a higher spending rate without any consultation with the appropriations committees.

Has the cost growth in the Prototype Miniature Air Launched System (PMALS) project been contained?

ANSWER: The Air Force is currently projecting no additional cost growth on PMALS. The PMALS ASAT program is fully supported by the FY 83 President's Budget Request and we do not, at this time, anticipate any further development problems. OSD recently completed an in-depth program review and found the management of the program to be in good shape. We are examining ways of improving the efficiency of producing ASAT operational missiles in an attempt to lower total system costs.

Technical Uncertainty in PMALS Project

QUESTION: What is the degree of technical uncertainty we may face in the PMALS project over the next three years? Is it significant?

ANSWER: The technical approach adopted by the Air Force and OSD to provide an ASAT capability contains a number of challenging elements. The development of the (deleted) for the Miniature Vehicle (MV) represents the major technical challenge on the program. The development effort is, however, nearing completion and we anticipate little technical uncertainty over the next three years. We see no significant problems between us and a successful flight test program.

ASAT Acceleration

QUESTION: Is ASAT program acceleration being considered in the future?

ANSWER: Acceleration of the ASAT program is not currently being considered. (Deleted). Assuming a successful flight-test program, we retain the option to accelerate the procurement of operational missiles.

ASAT Proceed With Flight Demonstration

QUESTION: Are you confident that this program should proceed with a flight demonstration?

ANSWER: Yes. A flight demonstration is a necessary prerequisite to achieving an operational antisatellite (ASAT) capability. Both the JCS and OSD have identified a pressing need for an ASAT capability to deny the Soviets the use of their space systems.

QUESTION: What is the funding level for the neutral particle beam research program in FY 1983? How does that compare with the charged particle beam program? What were the funding levels in FY 1982?

ANSWER: The FY 1983 funding for the DARPA Neutral Particle Beam Program is approximately $4.5M as compared with $26.5M for the Charged Particle Beam Program. The larger funding for the Charged Particle Beam Program reflects its more advanced state of development. In the Charged Particle Beam Program low energy beam propagation experiments have already been completed and the high energy Advanced Test Accelerator is under construction and scheduled for operation at full performance levels at the end of FY 1983. In the Neutral Particle Beam Program, the critical beam divergence experiments at low energies will not be performed with the Accelerator Test Stand until FY (d). In FY (d) a decision on whether to construct a 30-50 MeV Technology Demonstration Accelerator will be made based on the results of experiments with the Accelerator Test Stand.

In FY 1982 the funding for the DARPA Neutral Particle Beam Program was $4.35M as compared with $23.15M for the Charged Particle Beam Program.

QUESTION: Neutral particle beam research was transferred from the Army's Ballistic Missile Advanced Technology Center to DARPA in FY 1981. Do you believe that DARPA is still the proper management agent for this program?

ANSWER: At this time the Neutral Particle Beam Technology Program is at a very early stage of development. Until the feasibility of generating low divergence high power neutral particle beams is established in laboratory experiments, DARPA will remain the proper management agent for this program. As feasibility of Neutral Particle Beam concepts is established, this technology program will be transferred to the appropriate military service.

QUESTION: Can DARPA properly fund the particle beam program to ensure that the neutral particle beam research will not suffer in the future?

ANSWER: The Neutral Particle Beam Technology Program has been paced by the development of components essential to the generation of low divergence, high current neutral particle beams. These critical components include high brightness negative ion sources, radio frequency quadrapole injectors, high current RF linear accelerators, beam optics and neutralizers. At this time these components, which have been developed over the past several years, are being integrated in the (d). Accelerator Test Stand at Los Alamos National Laboratory. This device will be used to test the feasibility of maintaining low beam divergence through the critical low energy sections of high power RF linear accelerators. The development of these components and their integration in the Accelerator Test Stand has not been limited by funding, but instead by the rate of technical advances required to meet the stringent performance goals imposed by (deleted) applications. The pace of the Neutral Particle Beam Technology Program will continue to be governed by a prudent balance of technical risk and military payoff within available resources.

BLUE-GREEN LASER COMMUNICATIONS

QUESTION: DARPA currently funds an advanced technology program which would also attempt to mitigate our submarine communications problem -- the Blue-Green Laser Program. The FY-83 budget for Blue-Green Laser is $31.2 million.

Has a department-wide position yet been taken on whether to pursue a ground-based mirror or space-based Blue-Green program?

ANSWER: No. DARPA has chosen to focus their efforts on the nearer term airborne tactical Submarine Laser Communications (SLC) system which has been demonstrated to be feasible. The Navy supports this course of action. Concurrently, the technology of satellite systems is being pursued to address the basic issues of feasibility.

QUESTION: When would the Department be in a position to choose between these two approaches? Does the Navy prefer a space-based or ground-based mirror system? Why?

ANSWER: By the end of FY-84, the technology for satellite-based Submarine Laser Communications (SLC) systems will have been pursued sufficiently to understand the feasibility of laser satellite or mirror-relay versions and to permit a decision on which to pursue in further development. Much technology development remains before the feasibility of satellite systems can be established; however, the Navy presently prefers the space based laser system because of its potentially greater survivability.

BLUE-GREEN LASER COMMUNICATIONS

QUESTION: When was the feasibility of using communications with pulsed blue-green lasers first demonstrated?

ANSWER: The Navy conducted a study evaluating the feasibility of a satellite-to-submarine strategic communications system in 1977. The joint Navy-DARPA Strategic Laser Communications Program was started in the fall of 1978 to integrate the high power visible laser technology work being done by DARPA with the Navy's Communications applications.

QUESTION: What would be the most reasonable time frame in which we could expect to make a decision on whether to deploy a blue-green laser communications system?

ANSWER: By the end of FY-84, the technology for satellite-based Submarine Laser Communications (SLC) systems will have been pursued sufficiently to understand the feasibility of laser satellite or mirror-relay versions and to permit a decision on which to pursue in further development. An actual deployment decision could be made as early as FY-90.

QUESTION: When do you plan to conduct the first end-to-end Submarine Laser Communications Satellite Experiment (SLCSAT 1)?

ANSWER: The Submarine Laser Communications (SLC) Program will demonstrate airborne tactical SLC in operational level tests in late FY-84 and 85. Technology development for two approaches to a survivable strategic and tactical capability from an SLC satellite could lead to a late FY-84 decision on launching a first end-to-end Submarine Laser Communications Satellite Experiment (SLCSAT-1) by (deleted).

SUBMARINE STRATEGIC COMMUNICATIONS

QUESTION: What initiatives does the FY 1983 $49.8 million funding request for ELF support? Does actual construction of the Michigan site commence in FY 1983?

ANSWER: Construction of the Michigan site will commence in FY-83. The $49.8 million of R&D in FY 1983 will be used for the following ELF Communications System costs:

ELF Communications System Costs	FY 83
I. System Evaluation Operations:	5.4

a. Operation/Maintenance and Support. Operation of Wisconsin Test Facility (WTF). Support to Forest Service. Continue interference mitigation research with local utility companies.

b. Data Reduction and Analysis. Classified analysis of ocean area coverage data.

c. Receiver Installation. Install prototype receivers and receiving antennas in submarines.

d. Leased telegraph lines and message preparation equipment including crypto to connect submarine operating commander's message center with the WTF for message relay.

II. Environmental and Safety Research Development: 2.0

a. Grounds and Fault Detection Development. Design antenna and fault detection system and ground specifications to reduce the possibility of shock hazards. Supports suggestion by the National Academy of Sciences in its August 1977 report.

b. Contract for new studies such as electrosensitivity of fish, honey bees and migrating birds as suggested by National Academy of Sciences in its August 1977 report.

c. Establish Environmental Monitoring Program. Develop and manage environmental monitoring program at the transmitter site to include studies of wildlife and vegetation. Establish liaison with local government environmental protection agencies and officials to ensure coordination and cooperation by the Navy at all levels of government.

III. Fleet Equipment Research and Development: 10.1

a. Development of prototype ELF receiving system includes software, equipment components and message processing equipment.

b. Shipboard Antenna Development. Develop improved receiving antenna for submarines for high speed submarine operations.

IV. Shore Equipment Research and Development: 32.3

a. Design equipment for the shore based transmitters including message processing and encoding equipment, software, ELF power amplifiers, transmitting antenna systems and ground and fault detection equipment, and standby power generators.

b. Build prototype shore equipment to verify equipment design.

c. Build antenna system in Michigan with supporting Facilities.

d. Install equipment in Wisconsin facility.

TOTAL: 49.8

QUESTION: A November 30, 1981 GAO report concluded that the austere ELF now proposed, having two sites with small above-ground antennae, would have the potential for enhancing early trans-attack connectivity, but would not provide for survivable Emergency Action Message deliveries. Is it your opinion that the early trans-attack benefits that ELF would provide to our submarines are sufficient reason to continue the development of the system?

ANSWER: The ELF System approved by the President is not and has not been represented as capable of EAM delivery. Criticisms, which emphasize this, are invalid. ELF is not intended to transmit EAM's, but acts as a selective call to maintain connectivity and alert the SSBN's to an EAM arriving on other C^3 systems, such as TACAMO. A continuous signal, or the lack of signal, from the ELF system will alert submarines to adjust their operational posture to receive a higher data rate broadcast from alternative or survivable sources, such as TACAMO. There are (d) possible messages that can be sent via the ELF system, for example, to tell the submarine there's no traffic-stay at depth, or yes, you have a message, come to communications depth. ELF provides a unique, and currently unavailable, capability to communicate to our submarines at operational depths and speeds without the constraints of near-surface antennas.

The capability of ELF to function as an alert to strategic forces, even for a matter of minutes, directly supports SSBN survivability. Such an alert to possible EAM transmissions or attacks, increases probability of message reception by causing the alerted forces to monitor other more enduring links of communication.

QUESTION: Provide, in classified form, an assessment of the early trans-attack capabilities of ELF and TACAMO, along with an assessment of their prospects for survivability in a nuclear conflict.

ANSWER: ELF and TACAMO are complementary systems which contribute to meeting different requirements of the strategic communications mission, and there is synergism between the systems. This complementary effect would exist between the fixed ELF site and TACAMO in peacetime, and survivable, transportable ELF elements and the airborne system during nuclear war.

ELF: Under current fixed ELF system concept, the system is much smaller and less robust than originally planned and is not considered to be survivable in the face of direct nuclear attack. When viewed in the generally accepted context of the three phases of nuclear war, pre-, trans-, and post-attack, the major contribution of ELF is to the survivability of our strategic submarine force. This essential contribution is to reduce the means of detection of our submarines in the pre-attack phase.

Without ELF, our SSBN's are required to trail a floating wire antenna partially on the surface, or tow a buoy just below the surface (deleted).

The ELF signal (relatively immune to jamming) can penetrating seawater down to hundreds of feet, permitting submarines to operate within their optimum speed and depth envelope while able to continuously receive very short, formatted but meaningful messages (deleted). Because of its low data rate, ELF will not be used to deliver an Emergency Action Message (EAM), (deleted). In peacetime, an opponent is thus denied knowledge of patterns which could be useful in wartime. Its use will allow SSBNs to freely evade threatening forces while maintaining communications and serve as a hedge against future ASW breakthroughs which may allow the Soviets to detect submarines operating near the surface.

Deployment of the fixed facility will result in the installation of ELF receivers (deleted) and will permit the Navy to proceed with development of mobile, reconstitutable van-mounted ELF transmitters and injection systems.

There is also significant enhancement for attack submarine (SSN) operations from the use of ELF. It will improve the effectiveness of the SSN, such as when operating in direct support of a battle group. Increased search time and responsiveness to the group commander would accrue, since the SSN would not be required to depart optimum search depths to receive tactical instructions.

TACAMO: A dedicated force of TACAMO Airborne Very Low Frequency (AVLF) EC-130 aircraft represents the Navy's primary survivable system for the relay of nuclear control orders. The Atlantic TACAMO squadron maintains an aircraft continuously airborne, (deleted) and the Pacific squadron will be able to duplicate that posture by mid-1983. TACAMO, employed in a random-basing mode with flight patterns which keep it over ocean areas in communications range of uplinks from the National Command Authority, would be survivable by virtue of its mobility through the trans-attack and into the post-attack phase of most nuclear war scenarios.

A Navy study estimates that (deleted). It also indicates there exists a probability of (deleted) TACAMO aircraft in each fleet would survive a surprise attack, from the continuous airborne posture, in day-to-day operations. (Deleted).

Following nuclear attack, TACAMO aircraft would (deleted) to support the national warfighting capability.

During post-attack operations, absolute communications silence would be required (deleted). If necessary, aircrews would (deleted).

The exact duration of long-term survival, and ability of the crew to perform the mission would depend on the frequency and severity of equipment malfunction, aircraft dependability, ability of the crews to locate fuel supplies, and crew health in the radioactive environment. (Deleted).

(Deleted) limitations of the EC-130 force have led to the Navy's on-going efforts to acquire a fleet of modern follow-on aircraft for the TACAMO mission (ECX). The new aircraft would perform the expanded JCS communications mission of the future and have growth potential to accept operational improvements (deleted).

SUMMARY: Improvements to TACAMO, specifically the acquisition of ECX, and deployment of ELF will greatly enhance the achievement of our assured capability to communicate to the SSBN force when required. While the ELF system itself is not designed to transmit EAMs, its purpose is to enable those submarines, which are not continuously copying the VLF submarine broadcast due to their operating mode, to be alerted to, or be called up to receive an EAM from TACAMO. In this manner, ELF complements and enhances the effectiveness of TACAMO to deliver these vital messages.

QUESTIONS SUBMITTED BY SENATOR SCHMITT

CURRENT STATUS OF THE E-4B PROGRAM

QUESTION: What is the current status of the E-4B program?

ANSWER: The current E-4B program will result in a final fleet size of four E-4B aircraft. One E-4B is operational. The first E-4A is now undergoing retrofit to the E-4B configuration. Contracts have been signed for the second and third retrofit with the final delivery to occur in January 1985. The four aircraft E-4B fleet will support the National Emergency Airborne Command Post mission.

PLAN TO PROCURE ADDITIONAL E-4B's

QUESTION: Is there any plan to procure additional E-4B's?

ANSWER: The Air Force does not intend to purchase additional E-4B aircraft.

ADEQUACY OF CURRENT E-4 FLEET

QUESTION: Is the current fleet adequate considering routine maintenance requirements and the upgrades from E-4A's to E-4B's?

ANSWER: The current fleet of four E-4 aircraft is adequate. One aircraft is currently undergoing E-4A to E-4B retrofit and the other three are satisfying National Emergency Airborne Command Post requirements. For the interim period of time when two aircraft are undergoing E-4A to E-4B retrofit, any requirements that necessitate a third aircraft will be managed using SAC EC-135 resources.

E-4B'S IN ROLE OF PACCS

QUESTION: Has there been any consideration of utilizing E-4B's in the role of the Post Attack Command Control System (PACCS) or related roles?

ANSWER: Until last fall the Strategic Air Command advocated the procurement of additional E-4B aircraft for the SAC Airborne Command Post mission. However, last fall, as the result of a reassessment of their current and projected capability to provide strategic battle management during protracted nuclear war, CINCSAC expressed support for a Worldwide Airborne Command Post replacement aircraft for CINCSAC, CINCLANT, CINCPAC, and CINCEUR airborne command post missions in lieu of procuring additional E-4B aircraft. There are currently no plans under consideration to use the existing E-4B's for any mission other than the National Emergency Airborne Command Post mission.

STATUS OF THE ALCS PHASE III

QUESTION. The Air Launch Control System (ALCS) Phase III is the only airborne control system that can quickly assess damage in a post-attack period and then retarget our ICBM force. What is the status of that program?

ANSWER. Airborne Launch Control System Phase III provides airborne missile crews the added capabilities to receive alert status information directly from Minuteman missiles and to retarget the missiles. Today, without the Phase III update, the airborne crews are able to poll the ground crews for missile status and launch the missiles by a direct aircraft-to-silo UHF link. Missile retargeting can only be accomplished by a relay through the ground crews.

ALCS Phase III was cancelled in October 1981. This was a budgeting offset, part of the many funding decisions made in framing the overall strategic modernization program.

ALCS PHASE III IN CONJUNCTION WITH M-X MISSILE

QUESTION: Will ALCS Phase III be utilized in conjunction with the M-X missile system?

ANSWER: The Minuteman ALCS Phase III program was terminated in October 1981. M-X missiles that are to be deployed in Minuteman silos will utilize the airborne launch capability that now exists for the Minuteman Weapon System.

If ALCS Phase III is provided in the future to support retargeting and launch of Minuteman, those M-X missiles in Minuteman silos will also be made compatible with the ALCS Phase III capability. However, the ALCS Phase III modification will not be developed solely for the M-X silo deployment option.

Specific command and control requirements for long-term M-X deployment have not yet been defined. An airborne capability is one possible option for a survivable control center.

STATUS OF GPS-NAVSTAR

QUESTION: Last year the Congress directed the Air Force to reprogram the necessary funds to keep the IOC of the GPS-Navstar procurement on schedule. What is the current status of GPS and when can the Congress expect a reprogramming request?

ANSWER: The Navstar Global Positioning System (GPS) is in full scale development with worldwide coverage in two dimensions (latitude, longitude) planned for 1986 and three dimensions (altitude added) in 1988.

The $20.1 million fiscal year 1982 reprogramming request to start the 28 satellite block buy for the initial constellation has been approved by the Air Force and the Deputy Secretary of Defense and sent to Congress on 12 May 1982.

TOTAL PROJECTED COST OF THE MILSTAR PROGRAM

QUESTION: What is the total projected cost of the MILSTAR program with a year-by-year breakdown?

ANSWER: The Five Year Defense Plan for the MILSTAR program is:

	83	84	85	86	87	TOTAL
RDT&E	79.8	257.0	(D)	(D)	(D)	(D)
Aircraft Proc.	0	0	(D)	(D)	(D)	(D)
Spacecraft Proc.	0	0	(D)	(D)	(D)	(D)
Ground C&E Equip Proc.	0	0	(D)	(D)	(D)	(D)

At present we believe that additional money will be required (in addition to the FYDP) to meet the full range of MILSTAR requirements. We are currently conducting extensive contractor trade studies, looking at reduced requirements and refining the system cost. We expect these studies to be completed in the Fall of 1982.

VARIOUS EXISTING AND PROJECTED SOVIET ASAT THREATS

QUESTION: Has the issue of vulnerability (of NAVSTAR GPS satellites) to the Soviet ASAT been considered and can you provide information regarding its vulnerabilities to various existing and projected ASAT threats?

ANSWER: Yes, the issue of vulnerability to the Soviet ASAT has been considered in the design of the NAVSTAR GPS satellites. (Deleted).

INSURE THAT SMALL CONTRACTORS ARE INVOLVED IN MILSTAR

QUESTION: Considering that the two major companies in communications satellites have teamed on both parts of the MILSTAR program, what is the Department doing to insure that small contractors are involved in the program and that the current technology base is retained and expanded?

ANSWER: The teaming by two of the major communication satellite companies in pursuit of the MILSTAR communication satellite system Validation Phase does not preclude small business contractors from participating in the Full Scale Engineering Development (FSED) and Production Phases of the MILSTAR program.

Although small business opportunities in the Validation Phase are extremely limited, possibilities will exist in the FSED/Production Phases. To facilitate small business opportunity, the

FSED/Production request for proposals will be so structured as to require offerors to submit a detailed small business plan as a part of their proposal response.

To maintain and expand our technology base, we have a Program Element (PE 63431F, Advanced Space Communications) which develops technology for military satellite communications. Technology for existing systems (FLTSATCOM, DSCS, NATO SATCOM) was spawned in this program element and we are currently working on technology for the MILSTAR era and beyond.

The current technology base is spread among several major firms such as Ford Aerospace, General Electric, TRW, Hughes, Lockheed, Boeing, Motorola, and Rockwell, who are all involved in ongoing communication satellite programs, including MILSTAR. Therefore, teaming by two of these firms, which incidentally has been paralleled by the formation of two other teams consisting of four major firms, is considered to not only sustain competition but to ensure expansion of technology for future communication satellite programs.

COMPETITION IN SATELLITE COMMUNICATIONS

QUESTION: Are you concerned that competition in satellite communications may disappear because of the teams that were created?

ANSWER: Although three MILSTAR communication satellite teams have been formed by six communication satellite firms, the communication satellite industrial base consists of several additional firms who will, by all indications, be given an opportunity to participate as subcontractors in the MILSTAR program.

In addition, it is the published intent of the Air Force to fully compete the Full Scale Engineering Development and Production Phases of the MILSTAR program, retaining the option to select a prime contractor or an associate contractor contractual arrangement. This approach was selected to maximize the amount of competition for the MILSTAR program.

SPACE-BASED LASERS

Questions: Why has not the $20 million appropriated for the Air Force in the FY 1982 budget been released and when can we expect the funds to be expended as required by the law?

Answer: These funds for space-based lasers have been released.

QUESTION: What is the current program with regard to space-based lasers that the Department is proposing including goals, schedules, and costs?

ANSWER: The current DoD space-based laser research and development program plan is a multi-year effort scheduled for the (deleted) time period. The primary goal of these activities is to provide in (d) a basis for an informed decision on whether or not to proceed with the validation phase of the development program for a space-based laser weapon system. The emphasis is on potential applications in space superiority, anti-aircraft, and ballistic missile defense missions. The current program will assess the space-based laser in deployments for single and multiple missions, both as a stand alone weapon and as a part of a mixed force.

The activities the DOD will pursue are grouped into seven major areas of uncertainty: target vulnerability and hardening: utility; laser survivability; laser system definition; basic technology demonstration (DARPA Space Laser TRIAD); weapon feasibility technology; and growth technology.

In the first three years of the plan, the program emphasis is on system definition, survivability, and target vulnerability. These three areas contain the major uncertainties that preclude meaningful assessments of utility of space laser concepts. Key technology efforts required to establish the basic technical feasiblity are addressed by the DARPA Space Laser TRIAD Program. Specifically, major demonstrations of acquisition, tracking and pointing (Talon Gold); beam control (LODE); and chemical laser device (ALPHA) capabilities are programmed to be completed in (deleted) Service and other DARPA technology programs will address selected critical issues associated with applying the TRIAD technology to weapon development. Finally, DARPA and the Services will pursue technology development of short wavelength laser devices and associated optics, pointing and tracking capabilities to determine the growth potential for space based laser weapon systems.

The program is a closely coordinated effort between DARPA the Air Force, and the Army. The total funding is approximately (deleted) expended at an average rate of approximately (d) per year. Of this total, 69% is funded through DARPA, 28% through the Air Force, and 3% through the Army.

We believe the program is a fast-paced focussed effort which will efficiently resolve the uncertainties that currently prohibit an informed decision on the future development of space-based laser weapons. It is also a balanced effort that addresses both the mature chemical laser technology which could provide the option for weapon deployment by (deleted) and short wavelength technology which may provide a more capable system (deleted).

A more complete description of the space-based laser program plan is contained in the Report to Congress to be submitted shortly by the Secretary of Defense.

QUESTION: Under the current DoD program, when can we expect a space demonstration of a laser weapon?

ANSWER: If the DoD program leads to a positive decision in (d) to proceed to the validation phase of space-based laser weapon development, efforts could begin immediately to design and build an on-orbit demonstrator. Launch of that system could occur in the (d) time period. Assuming a successful demonstration, a prototype weapon system could be launched approximately (deleted) provided fabrication and test facility, C^3, surveillance, and launch vehicle development for the prototype system were initiated in (deleted).

These schedule estimates apply only if both the demonstration system and the prototype are based upon chemical laser technology. If the less mature short wavelength laser technology were assumed, then the schedule for the demonstration and the prototypes would slip well into (deleted).

AF REQUIREMENT FOR A HIGH ENERGY UPPER STAGE

QUESTION: What is the requirement within the Air Force for a high energy upper stage?

ANSWER: The Air Force is anticipating a need for placing about 10,000 pounds into geosynchronous orbit beginning in late

1980's. This projection is based upon our space program experience, which shows a continuing demand for increased spacecraft mission capability (and thus spacecraft weight) and the additional survivability measures being incorporated into our new spacecraft.

IOC OF THE HIGH ENERGY UPPER STAGE

QUESTION: What is the IOC of the program you are proposing for the development of a high energy upper stage?

ANSWER: Our initial planning projects late 1987 as the IOC for the Higher Energy Upper Stage. This, of course, could be revised as we conduct more detailed requirements analyses during our concept validation studies.

HIGH ENERGY UPPER STAGE VS CENTAUR

QUESTION: Does it make any sense to waste a great deal of time and money on development of a high energy upper stage at this time rather than using the Centaur for the short-term and developing a reusable Orbital Transfer vehicle for the long-term?

ANSWER: The Centaur, as proposed by NASA, was not capable of meeting DOD short-term launch needs. The Centaur was optimized for the NASA Galileo mission to Jupiter and significant modifications to both the Centaur and our spacecraft would have been required. These modifications were of sufficient magnitude (see table below) to increase schedule risk beyond limits acceptable to critical DOD payload mission needs. For example, even the short (20' long) Centaur proposed could not accommodate all DOD payloads in the Shuttle bay.

CENTAUR PROGRAM COSTS

ITEM	COST
Centaur development/production (NASA estimate) - R&D on stage and support equipment - Build 9 vehicles - modify 2 orbiters	$626M
Centaur Modifications for DOD use (USAF estimate) - Per NASA/DOD study "Upper stages for the Shuttle Era", Oct 81 to the Congress	$175M-$320M
DOD Payload Modifications (USAF estimate)	$200M-$500M
TOTAL COST	$1001M-$1446M

The need for (and the cost of) the modifications cited above, combined with a lack of near term DOD requirements to justify a sole source procurement, resulted in the decision not to support the specific Centaur proposal offered by NASA. However, if we are to satisfy the DOD requirements projected for the late 1980s and the 1990s, we must begin concept definition work now. This will allow us to conduct an industry competition for the Higher Energy Upper Stage (HEUS), for which the Centaur is a viable candidate.

We plan to conduct the HEUS development as a joint DOD/NASA program. Our plan is to investigate, during the conceptual phase, methods of designing the HEUS to grow (using preplanned product improvement concepts) in an incremental way that could also allow the HEUS to satisfy NASA requirements for an Orbital Transfer Vehicle (OTV). In this manner only one major new upper stage development program would be needed, resulting in a substantial cost avoidance.

TOTAL COST OF HIGH ENERGY UPPER STAGE

QUESTION: What will be the total cost of the high energy upper stage program you are proposing?

ANSWER: The total cost of the Higher Energy Upper Stage (HEUS) development could range from a minimum of about $500 million to a high of about $1 billion depending upon the concept chosen.

However, as can be seen in our answer to question S-306, substantial modifications to DOD spacecraft could result if the spacecraft needs are not adequately considered. Therefore, we may accept higher than the minimum HEUS cost if that will avoid larger investments in modifying all of the DOD spacecraft.

Further, if we can design a HEUS which satisfies both DOD requirements and NASA Orbital Transfer Vehicle (OTV) requirements, we may also be willing to accept increased HEUS costs to avoid the higher cost of having two separate new upper stage programs. These economic tradeoffs will be a part of our HEUS conceptual and definition activities.

SUPPORT OF THE CENTAUR

QUESTION: The Shuttle has flown three times and has already established some reliability, yet the Department argues that expendable launch vehicles are needed as back-ups. The IUS has not yet flown, it has encountered numerous fiscal and technical problems, some of which are still unresolved, and it cannot meet certain requirements for the Air Force in the mid-1980's, yet the Department refuses to support the Centaur. Can you explain this apparent inconsistency?

ANSWER: We agree that the Shuttle has demonstrated an ability to fly, and we expect it will also demonstrate a capability to launch our operational payloads. Unless some delays are encountered in demonstrating the operational capability of the Shuttle, our maintenance of Titan production capability will end in September 1983.

The IUS has encountered technical and fiscal problems. However, the IUS program has been conducted within current cost and schedule projections for about the past 18 months, and all development and production work supports our launch requirements. The IUS has successfully completed all of its system level qualification testing, and this has traditionally been our technical milestone for committing space hardware to operational flights.

The IUS will first fly on Titan in September 1982 and on Shuttle in January 1983 -- both launches will carry operational payloads. Consequently, we believe the IUS technical, cost, and schedule issues have been resolved.

The IUS satisfies all firm DOD requirements through the late 1980s (reference joint NASA/DOD report to the Congress, "Upper Stage Alternatives for the Shuttle Era", October 1981). That same report cited DOD support, not opposition, to NASA Centaur development.

The DOD rejected a specific Centaur proposal that required us to accept inordinately high levels of risk to DOD near-term launch requirements. This sole source proposal required termination of the IUS to fund Centaur development to meet the NASA Galileo launch in 1985, without any assurance we could launch DOD missions when necessary.

This, combined with the lack of firm DOD requirements for the increased Centaur payload lift capability until the late 1980's, led to our decision to continue the IUS program. We plan to meet our late 80's requirements with a competitively procured Higher Energy Upper Stage. The Centaur will be an obvious competitor for the HEUS.

DOD "POLITICALLY"/"FINANCIALLY" SUPPORT PROCUREMENT OF FIFTH ORBITER

QUESTION: Unless funds are provided this year, the production line for the fifth Orbiter will be closed down. Does the Department of Defense "politically" support the procurement of the fifth Orbiter in FY 1983?

Would the Department "financially" support the fifth Orbiter if funds were not available in the NASA budget?

Does the Department have any plans to procure its own Orbiters?

ANSWER: "We," the nation, need to build five Orbiters and maintain the capability to produce others while we (a) gain operational experience with the abilities of the Shuttle, (b) refine our estimates of Orbiter attrition and (c) refine the estimates of launch demand compared to traffic capacity of the existing fleet.

No, the Air Force is not willing to fund additional Orbiters. NASA is responsible for the procurement of the requisite number of Orbiters to support the National requirements. That NASA investment responsibility (plus their other investment responsibilities) is balanced by the DOD investment responsibility. Our investment share in the Shuttle program is approximately equal to our projected use of the system. Further, the large increases in STS flight demand which cause the need for additional Orbiters come from the civil sector -- not the defense sector whose demand has decreased from 156 Shuttle flights through 1992 (1977 estimate) to 124 Shuttle flights through 1994 (1982 estimate).

No, we do not have any plans to procure our own Orbiters. By agreement between the NASA Administrator and the Deputy Secretary of Defense (1977 and reconfirmed in 1980), NASA is responsible for the procurement of Orbiters (and, therefore, will maintain the necessary system expertise to manage that procurement).

AIR FORCE STUDY OF SUITABILITY OF NORTHRUP STRIP

QUESTION: Has the Air Force done an independent study of the suitability of Northrup Strip at WSMR as an alternate or once-around abort landing site for the Shuttle launches out of VAFB? What were conclusions?

ANSWER: The Air Force has done extensive evaluations of once-around polar orbit abort requirements as part of our planning for the Vandenberg Shuttle launch site. We would not characterize these as totally "independent" because of the NASA participation on Shuttle performance capabilities. Our evaluations reached several conclusions, including:

- Only Vandenberg AFB can be used as a once-around abort landing site. This is because the earth's rotation moves Vandenberg about 1000 miles east during the 1-1/2 hours it takes for the first orbit. Thus, the entire Orbiter cross-range capability is needed to return to Vandenberg.
- Landing sites east of Vandenberg, including Edwards AFB and White Sands, cannot be used for once-around aborts. The Shuttle Orbiter does not have sufficient cross-range maneuvering ability to reach these sites on the first orbit.
- Once in orbit, the ground track will pass within landing range of White Sands several times a day. A White Sands landing

would be possible on those specific orbits should a contingency require landing.

QUESTION: Please show how Defense space research, development and operations are organized in the Defense Department.

ANSWER: The acquisition management of space programs within the Office of the Under Secretary of Defense for Research and Engineering is organized along functional lines. The Deputy Under Secretaries for Command, Control, Communications and Intelligence; Strategic and Theater Nuclear Forces; and Reseach and Advanced Technology, in addition to the Director of DARPA, are responsible for space programs within their respective areas. Dr. DeLauer has designated the Director of DARPA as the focal point for space activities across all mission areas.

Elsewhere in the Office of the Secretary of Defense, the Director for Intelligence and Space Policy in the Office of the Under Secretary of Defense for Policy has major policy responsibility in the space area. In order to address broader issues, the Defense Space Operations Steering Committee has been established to advise the Secretary of Defense.

QUESTION: How were various inputs within the Defense Department aggregated and how were differences of opinion resolved?

ANSWER: Space programs within the Defense Department are handled no differently than any other systems procurement. The Services provide Program Objective Memoranda in the May-June timeframe each year. These are reviewed by the OSD staff and provide the basis for Services submitting their Budget Estimates in the September-October timeframe. This submission forms the basis for the development of the President's Budget which is sent to Congress in January. Differences of opinion are resolved through this process.

High Energy Laser Program Management

QUESTION: How are the Defense High Energy Laser programs currently organized and managed?

ANSWER: Each of the Services and the Defense Advanced Research Projects Agency (DARPA) has a program management office and a budget for its high energy laser program. Each of the Services pursues technology development for mission applications appropriate to it, and DARPA is pursuing technology development for space-based applications. The Air Force also has an effort being conducted by its Space Division to develop essential data on the total space-based laser system (including surveillance and warning, command and control, and launch and support).

Management focus for the total Department of Defense high energy laser program is provided by the Assistant for Directed Energy Weapons in the office of the Under Secretary of Defense for Research and Engineering.

Airborne Laser Laboratory

QUESTION: What are the current status, future objectives, and funding profile for the Air Force Airborne Laser Laboratory program?

ANSWER: The purpose of the Airborne Laser Laboratory flight test program is to determine the technical feasibility of airborne high energy lasers. Tests last June demonstrated (deleted) (deleted). Presently, testing is suspended to allow scheduled depot maintenance of the aircraft and to permit maintenance and modification of the laser system equipment. Many months are required for the aircraft maintenance and reinstallation of the laser system equipment. When flight testing resumes next year, there is every reason to believe that the Airborne Laser Laboratory will demonstrate shooting down of an air-to-air missile.

Future plans call for (deleted) tests against nearly simultaneously launched multiple missiles.

Funding estimates for the program are (d) million in fiscal year 1982, (d) million in fiscal year 1983, and (d) million in fiscal year 1984.

QUESTIONS SUBMITTED BY SENATOR KASTEN

SPACE BASED LASER SYSTEM OPERATIONAL DATES

QUESTION: General Kelly Burke recently stated that the Soviet Union might orbit a space based laser weapon system within five to ten years but that the U.S. probably wouldn't be able to field this type of weapon until the late 1990s. How would you assess the accuracy of that statement?

Answer: We believe the Soviets could launch a moderate power laser weapon probably in the (deleted).

MILITARY UTILITY OR CAPABILITY OF SOVIET LASERS

QUESTION: General Burke seemed relatively unconcerned about the military utility or capability of an initial Soviet laser weapon. Do you share that assessment?

Answer: (Deleted).

QUESTION: Do you think that the Soviets would gain significant political advantage by being the first to deploy a laser weapon in space?

ANSWER: (Deleted).

Considerable interest has recently developed in the international community for an arms control regime in outer space. The Geneva-based Committee on Disarmament has the subject on its current agenda. Western countries and the Soviet Union have submitted resolutions on this subject through the last UN General Assembly.

With that reality as a back-drop, the orbiting by the Soviet Union of a laser weapon system would certainly highlight Soviet hypocracy in this area. The Soviets already have an operational anti-satellite weapon and any further activity in terms of expanding their use of space for aggressive military purposes would certainly fly in the face of the propaganda effort they are trying to make in international space forums.

AIRBORNE LASER TESTS AT CHINA LAKE

QUESTION: I understand that one of our airborne laser tests at China Lake, California, last summer failed. Could you explain what that test was? What were we trying to demonstrate or learn from it? Was the failure a result of fundamental problems or minor technical difficulties?

ANSWER: On 1 and 3 Jun 81, the Air Force attempted, for the first time, to shoot down a Sidewinder air-to-air missile with the Airborne Laser Laboratory (ALL) at China Lake, California. On both occasions the laser system acquired, tracked, and engaged the missile targets. On the first day, system safety aborts shut down the firings prematurely. On the second day, laser system mechanical problems caused higher than normal beam motion which prevented a successful shoot-down of the missile.

These Airborne Laser Laboratory tests are part of an ongoing flight test program to determine the technical feasibility of airborne high energy laser weapons. These tests demonstrated that air-to-air missiles can be acquired, tracked and engaged by an airborne laser.

The ALL program is a very challenging endeavor and progress is sometimes slow, but significant advances continue to be made. There are no fundamental phenomena which preclude the operation of airborne lasers, and there is every reason to believe the ALL will shoot down air-to-air missiles in future tests.

QUESTION: Senator Wallop plans to introduce an amendment to the authorization bill to add $250 million for speeding up the Space Based Laser Program. Do you think that additional money could be effectively spent? Would it substantially accelerate the program?

ANSWER: Like any other effort, the space-based laser program could spend additional resources with some promise of schedule acceleration. However, it is our belief that additional resources could not be spent efficiently. Due to increased risk, the return on investment of these additional resources would be substantially reduced below what we anticipate for the current program. We welcome support of the program from Congress, but we believe that the program as currently planned is adequately funded and properly paced to resolve the technical uncertainties associated with space-based laser weapons.

SPACE SYSTEMS

QUESTION: Last July an article in the Boston Globe quoted Lieutenant General William H. Ginn as confirming reports that the Pentagon was trying to get Japanese cooperation in areas of microelectronics and laser technology. That report also quoted Japanese government sources as saying that their government would formally decide in September on the U.S. request for technological assistance. But I haven't seen anything about that since. Is that report correct?

ANSWER: The article you mention was partially correct. We did ask the Government of Japan (GOJ) last year to share defense technology with us. The technical precise areas have never been specified although lasers and microelectronics frequently are cited as examples of areas where cooperation likely could take place. The GOJ has not yet reached a decision concerning the sharing of defense technology with the U.S. although it has been deliberating on the subject since last year. Indications are that a decision will be reached during late May, and we expect the decision to be favorable.

LASER TECHNOLOGY

QUESTION: Is Japan substantially ahead of the United States in areas of Laser Technology that has military applications?

ANSWER: There is no evidence to indicate that Japan is ahead of us in the area of military applications of Laser Technology.

SPACE SYSTEMS

QUESTION: Did they make a decision in September to cooperate with us?

ANSWER: The article you mention was partially correct. We did ask the Government of Japan (GOJ) last year to share defense technology with us. The technical precise areas have never been specified although lasers and microelectronics frequently are cited as examples of areas where cooperation likely could take place. The GOJ has not yet reached a decision concerning the sharing of defense technology with the U.S. although it has been deliberating on the subject since last year. Indications are that a decision will be reached during late May, and we expect the decision to be favorable.

QUESTION: If they aren't cooperating, what are we doing to elicit that assistance? It seems to me that with all we spend on ensuring their security and protecting sea lanes that they depend on more than us, the least they could do is cooperate on technological advances.

ANSWER: During the past year we have continued to press the GOJ for a favorable decision on our request for two-way defense technology sharing. Because a decision has not been reached, we have not initiated new technology sharing programs. Exchange programs and weapons systems transfers already underway have continued. As mentioned earlier we expect a favorable decision from the GOJ on this subject in the near future.

QUESTIONS SUBMITTED BY SENATOR STENNIS

SURVIVABILITY OF SATELLITES

QUESTION: Secretary Latham, are you satisfied that our satellites that require survivability enhancement have been identified, and those assets will be survivable and available when required? Is it your opinion that current funding levels are adequate to assure survivability of satellites?

ANSWER: All our satellites have been identified as requiring survivability enhancements. However, these improvements will be implemented in an evolutionary manner or in the following-on programs. For example, the remaining two DSCS II satellites to be launched in September 1982 and early 1983 will have (deleted).

In addition DSCS III will have improved anti-jam protection as well as command and control capability independent of the satellite control facility (SCF) at Sunnyvale, California The follow-on Defense Support Programs satellites will have (d) The new MILSTAR satellite planned for launch in the late 1980's w also incorporate the latest survivability techniques (d). In addition, the Air Force has identified R&D funds to continue development of technology for further improving the survivability of our space assets. All these improvements in our satellite systems are adding to our assurance that they will be available when required.

US ASAT PROGRAM

QUESTION: Where do we stand on our program for planned destruction of designated foreign satellites? What is the planned operational capability date that this program is projected toward? What is the required mission success probability that you are looking for?

ANSWER: The Air Force is developing a non-nuclear, air-launched ASAT to counter the threat represented by low-altitude Soviet space systems. This system will be operational in FY (d) and consists of an F-15 launched, modified short-range attack missile (SRAM) first stage, an ALTAIR III second stage, and a miniature vehicle (MV) warhead. The minimum required negation effectiveness (expected probability of kill) against each target is (deleted).

Technical Complexity and Cost of Small Laser

QUESTION: Have any studies recently been done to examine the technical complexity and cost of a small laser to satisfy the anti-satellite mission?

ANSWER: No analyses have been completed on a space laser with ASAT-only capability since the Report to the Congress on Space Laser Weapons was submitted in May 1981. The new space laser program office is studying this option, and the results will be available October 1982.

QUESTION: There continues to be great controversy relative to the merits of continued development of chemical versus short wavelength lasers. What can you tell us about the merits of each?

ANSWER: Chemical laser technology has the merits of demonstrated high efficiency operation in the low pressure environment of space, and the potential to scale to power levels (deleted) with very good beam quality. Its wavelength is consistent with projected advances in large optics and precision pointing to allow deposition of very large fluxes at operationally significant ranges. For example a (deleted) platform could deposit (deleted) range. That flux, nearly twice that [deleted] would destroy (deleted) in [deleted]. The chemical laser technology base is relatively mature, having demonstrated high efficiency in (deleted) and has evaluated resonator designs projected to be capable of operation (deleted).

Short wavelength technology has the merits of potentially smaller beam divergence resulting in a higher brightness, longer range systems if pointing jitter, optics distortion, and beam distortion can be improved in proportion to the wavelength change. Most concepts currently being examined are electrically driven and would require electrical efficiencies well beyond anything which has been demonstrated to offer an advantage over chemical lasers for space basing. The short wavelength technology base is substantially less mature than that of chemical lasers and the latter represents the only viable alternative for a space based weapon deployment in this century. Prudence dictates, however, that we also continue to explore advanced laser concepts such as short wavelength devices to provide future options for growth potential.

QUESTION I understand the DARPA TRIAD program is the only logical near-term option available. Would you agree with this assessment and tell me the impact which the House Armed Services Committee-recommended reduction would have on this program?

ANSWER: I would agree. It is the DoD's assessment that, unless there are major technological breakthroughs, chemical lasers are the only technology that will support the development of an operational space laser weapon system by the end of this century. The more advanced short wavelength technologies are (deleted) less mature than chemical lasers and would require major technical advances for exploitation.

Termination of the ALPHA Program would eliminate any possibility that the U. S. could field a space based laser weapon system in the next fifteen years by dismantling the only mature laser device industrial base in this country applicable to space systems. If the LODE Program were cancelled, then the U. S. would be unable to exploit any high energy laser device technology precision pointing systems to fabricate high brightness space based laser weapons.

Question: In your opinion, what is the earliest possible date that a short-wavelength laser could be operationally effective?

Answer: The nearest term military application for high power short wavelength lasers is negation of low earth orbit satellites with lasers stationed on the ground. The technical feasibility of scaling short wavelength laser devices and adaptive beam control systems to the required performance levels for this application can be determined within this decade. Therefore, if feasible, an operational ground based laser ASAT against low earth orbit satellites should be possible (deleted). This technology can potentially be developed further to provide a ground based laser ASAT capability against geosynchronous orbit satellites (deleted) (deleted). In the farther term, it may be possible to build on this ASAT technology and develop space based short wavelength lasers for more stressing space defense applications. If feasible, the earliest operational capability for these applications would occur after the year (deleted).

QUESTION: What effect would schedule slippages in the TRIAD program have on the Air Force's laser weapons development program?

ANSWER: The Air Force Space Based Laser Program is part of a coordinated DoD plan to provide a basis for an informed decision in (d) on whether or not to proceed to weapon development. The DARPA TRIAD, a key part of that plan, is required to establish the basic technical feasibility of the laser device, optics, and acquisition tracking and pointing. Slippages in the TRIAD would either force a delay in the (d) decision point or require making that decision in the absence of some of the technical feasibility data.

QUESTION: Would you say that the space laser program is limited by funding rather than being technically paced as regards to development efforts?

ANSWER: The space laser program represents a prudent balance of technical pace in the face of competing demands for resources. We are funding those efforts that we believe make sense at a pace to allow an informed decision to be made on weaponization in (deleted).

QUESTION: What impact would an accelerated technically paced effort have on program demonstration and deployment milestones?

ANSWER: An accelerated effort could move forward in time the (d) decision milestone on weaponization of the technology. If this decision were to proceed to weapon deployment, it could also move forward the deployment date of any subsequent weapon development effort.

QUESTION: Is it your opinion that it is fiscally prudent to continue funding several alternative programs leading to development of high energy laser technology?

ANSWER: Yes. The most mature laser technology and the only viable basis for a space laser weapon capability (deleted) is the near infrared chemical laser. Short wavelength devices, if they can be developed with good beam quality and high efficiency and if optics phase errors and pointing jitter can be driven down to appropriate levels, offer potentially high payoff in terms of longer engagement ranges from higher brightness weapon platforms. Thus it is prudent to concentrate near term efforts on chemical laser related approaches while continuing a strong research investment in advanced short wavelength lasers for growth potential.

QUESTION: Has there been any attempt to establish priorities in the high energy laser technology development program, i.e., could the program be geared to any specific national security need?

ANSWER: There has recently been a major DoD planning effort to examine and prioritize potential space based laser program goals and to construct efforts to accomplish selected goals. This has resulted in the joint DoD space Laser Program Plan with participation by the Air Force, the Defense Advanced Research Projects Agency, and the Army. The overall objective of this effort is to provide an informed basis for a decision in (d) on whether or not to proceed to development of a space based laser weapon for multimission applications such as anti-air, ballistic missile defense, or anti-satellite operations.

QUESTION: Would you comment on the overall architecture for communications satellites and how programs such as FLTSAT, LEASAT and MILSTAR complement each and fit together.

ANSWER: Today's communications systems exhibit significant shortcomings in survivability and endurance, as well as capacity, connectivity, and signal covertness (Low Probability of Exploitation (LPE)). The architecture developed to resolve these shortcomings evolves from the myriad of current systems to a dual extremely high frequency approach which improves the Defense Satellite Communications System (DSCS) and acquires a new Military Strategic, Tactical, and Relay (MILSTAR) System.

The Nuclear Capable Forces are served by the Air Force Satellite Communications (AFSATCOM) System which consists of dedicated transponders on host satellites in geostationary Fleet Satellite (FLTSAT) and critically inclined elliptic orbits Satellite Data System (SDS). To provide increased survivability and improved performance in nuclear and jamming environments the service of this group will be transitioned to MILSTAR. This transition will begin with the first launch in (d) and will be completed by the mid 1990s. MILSTAR will contain four AFSATCOM compatable Ultra High Frequency (UHF) channels to provide backward compatibility until the necessary terminals have been replaced and transition is complete.

The Tactical/Mobile (non-nuclear) Forces are served in the near-term by the FLTSAT and Leased Satellite Systems. To aid in the transition of these forces, a small MILSTAR compatible extra high frequency applique package will be deployed in FLTSAT's 7 and 8. This package will permit the technical and operational testing of development Extremely High Frequenty (EHF) terminals and limited (deleted). The FLTSAT constellation will begin to degrade in the late 1980s as the spacecraft achieve their life expectancies.

The capacity required to support the thousands of Conventional Forces' UHF terminals will be augmented, in peacetime, by LEASAT leased communications service. Four shuttle-launched LEASAT spacecraft will be operational in the mid-80s.

LEASAT can be expected to provide continued service to the Conventional Forces until the early 1990s. LEASAT is hardened for natural environments only; however, its capacity is needed to provide low priority, peacetime support. Therefore, as LEASAT fails, it will be replaced with other leased satellite communications service.

QUESTION: Would you also comment on the agreements the Office of the Secretary of Defense (OSD) and the Navy and Air Force have made relative to the overall architecture.

ANSWER: Under the existing agreements between OSD and the Services, Joint Military Satellite Communications (MILSATCOM) architectural efforts define the Military Strategic, Tactical and Relay (MILSTAR) system as an operational seven-satellite Extremently High Frequency (EHF) system (four in synchronous orbit and three in high elliptical orbit) to meet the survivable and jam-resistant communication needs of the strategic and tactical forces. This new system will also be used for National Command Authorities (NCA) connectivity and will host a communications relay capability for the (deleted).

To reduce the technical risk and provide a means to conduct technical and operational evaluation testing of engineering development EHF satellite terminals, a small EHF Fleet Satellite (FLTSAT) applique package will be deployed on FLTSATs 7 and 8. The option to place this package on FLTSAT 8 will depend on the overall progress of the MILSTAR satellite and will remain under continuous review. Such a small EHF applique package should provide the (deleted).

The Air Force Space Division has established a Joint Program Office (JPO) to function as the overall development and management organization. Under the direction of the JPO, the Navy will be responsible for the joint service engineering development of the EHF satellite terminals.

STRATEGIC C^3 BUDGET

Question: The budget request of $2.8 billion for Strategic C^3 programs is almost entirely to achieve new capabilities. What was the similar appropriation in fiscal year 1982?

Answer: The similar appropriation amount for fiscal year 1982 for Strategic C^3 programs was $2,491 million.

Question: This amount is for Research, Development and Acquisition. But really, this is only the tip of the iceberg. What is the cost of these new initiatives over the five-year program?

Answer: The FY 1983 budget request of $2.8 billion for Strategic C^3 programs is for RDT&E, Procurement, Military Construction, Operations & Maintenance and Military Personnel appropriations. The cost of these Strategic C^3 programs projected over the five year period for FY's 1983 to 1987 is approximately $18 billion in constant FY 1983 dollars.

PAVE PAWS SLBM DETECTION RADARS

QUESTION. When will the new PAVE PAWS SLBM detection radars to improve coverage in the Southeast and Southwest areas be operational?

ANSWER. The Southeast PAVE PAWS radar at Robins Air Force Base, Georgia will be operational by September 1986. The Southwest PAVE PAWS radar near Goodfellow Air Force Base, Texas will be operational by March 1987.

FALSE WARNINGS WITHIN EXISTING MISSILE WARNING SYSTEM

QUESTION. During the past several years, a number of false warnings have been generated within the existing missile warning system. Do you believe the planned improvements will preclude occurrences of these false warnings in the future? In what time frame would these improvements be available?

ANSWER. We have already taken the necessary action to preclude any recurrences of false missile warning events of the nature of those which occurred on 9 Nov 1979 and on 3 and 6 Jan 1980. We have programmed upgrades to the existing missile warning system computers which will ensure they remain viable until their scheduled replacements. The NORAD Computer System (NCS) will be replaced in the FY 84-88 period. The Communications System Segment (CSS) will remove and ballistic missile TW/AA interfaces from the present CSS and place them on a modernized communications interface computer. This phase will be accomplished in the FY 82-86 period. Follow-on CSS replacement plans will transfer space defense, air surveillance, and common-user interfaces from the CSS to the new system in the FY 88-92 period. These upgrades and eventual replacements should continue to improve the credibility, reliability and availability of information provided by the missile warning system.

REASON FOR RETAINING LORAN-C SYSTEM

QUESTION. The NAVSTAR/Global Positioning System (GPS) could be a national asset and replace many existing navigation systems at substantial savings. The Coast Guard had planned to retain the LORAN-C system through at least the year 2000. Why is this?

ANSWER. The Department of Defense (DOD) has no requirement for LORAN-C out to the year 2000. The Federal Radio Navigation plan (joint DOD/DOT plan) does, however, document a need for LORAN-C out to the year 2000 to support a large civil user requirement in the coastal water areas. This is probaly the reason the Coast Guard is retaining the system.

STATUS OF DEFENSE SUPPORT PROGRAM SIMPLIFIED PROCESSING STATION

QUESTION: What is the status of the Defense Support Program simplified processing station which was to be established in an overseas location?

ANSWER: The Simplified Processing Station (SPS) is operational at its current location at (deleted) (deleted) and backs up the CONUS ground station (CGS). Final plans are being made to move the SPS to (deleted).

Basis for Establishing Simplified Processing Station Overseas

QUESTION: What was the basis for establishing this station in an overseas location? Why could it not have been located at a separate location within the continental United States?

ANSWER: There are three requirements that establish the basis for moving the Simplified Processing Station to an overseas location. They are: (1) to improve the overall availability of DSP Eastern Hemisphere data not possible from a CONUS site, (2) to provide a (deleted).

The Simplified Processing Station (deleted).

Operational Date for Simplified Processing Station

QUESTION: When will the simplified processing station be operational?

ANSWER: The Simplified Processing Station is currently operational in the continental United States (deleted).

REQUIRED FUNDS NOT INCLUDED IN THE PRESIDENT'S REQUEST

QUESTION: The Senate Armed Services Committee has recommended adding $50 million to the fiscal year 1983 Defense Budget to ensure the earliest feasible IOC for MILSTAR and deployment of an EHF package on FLTSAT numbers 7 and 8. Why were these funds not included in the President's request if they are required?

ANSWER: The amount of funding submitted in the President's Budget was based on very early cost estimates for the MILSTAR program. Since the completion of the President's Budget in December 1981, we have continued to refine our cost estimates. We now believe that additional money will be required to meet the full range of requirements directed for a (d) launch.

SUBCOMMITTEE RECESS

Senator SCHMITT. The hearing is recessed until tomorrow at 9.

[Whereupon, at 11:25 a.m., Wednesday, April 28, the subcommittee was recessed to reconvene at 9 a.m., Thursday, April 29.]

DEPARTMENT OF DEFENSE APPROPRIATIONS FOR FISCAL YEAR 1983

THURSDAY, APRIL 29, 1982

U.S. SENATE,
SUBCOMMITTEE OF THE COMMITTEE ON APPROPRIATIONS,
Washington, D.C.

The subcommittee met at 9:45 a.m., in room S-407, the Capitol, Hon. Ted Stevens (chairman) presiding.

Present: Senators Stevens, Schmitt, and Rudman.

INTELLIGENCE OVERVIEW

The subcommittee heard the classified testimony of Adm. Bobby R. Inman, Deputy Director of Central Intelligence.

DEPARTMENT OF DEFENSE APPROPRIATIONS FOR FISCAL YEAR 1983

WEDNESDAY, MAY 5, 1982

U.S. Senate,
Subcommittee of the Committee on Appropriations,
Washington, D.C.

The subcommitee met at 9:05 a.m., in room 1318, Everett McKinley Dirksen Senate Office Building, Hon. Ted Stevens (chairman) presiding.

Present: Senators Stevens, Andrews, Kasten, Rudman, and Stennis. Also present, Senator Specter.

DEPARTMENT OF DEFENSE

Department of the Navy

STATEMENT OF HON. GEORGE A. SAWYER, ASSISTANT SECRETARY OF THE NAVY, SHIPBUILDING AND LOGISTICS

ACCOMPANIED BY:

- **VICE ADM. R. L. WALTERS, USN, DEPUTY CHIEF OF NAVAL OPERATIONS (SURFACE WARFARE)**
- **REAR ADM. J. K. NUNNELEY, DIRECTOR OF SHIPS AND MAINTENANCE AND MODERNIZATION DIVISION, DCNO (LOGISTICS)**
- **VICE ADM. E. B. FOWLER, USN, COMMANDER, NAVAL SEA SYSTEMS COMMAND**
- **REAR ADM. R. A. MILLER, USN, DIRECTOR OF BUDGET AND REPORTS, OFFICE OF THE NAVY COMPTROLLER**

NAVY SHIPBUILDING AND OVERHAULS

BUDGET REQUEST

Senator Stevens. The subcommittee will come to order.

We are here to conduct a review of the Navy's request for ship overhaul and modernization programs and the ambitious shipbuilding effort for fiscal year 1983.

Between these two major initiatives, the Navy is requesting over $23 billion for shipyard industrial work, almost 30 percent of the budget authority requested for all Navy activities.

The ship maintenance and modernization program is over $4.6 billion, up $700 million from the 1982 program. The shipbuilding program of $18.6 billion is more than double last year's program.

Although the budget authority request is unprecedented, the 1983 outlay impact of these two programs is less than $4.5 billion. Only $1.1 billion of it is from shipbuilding.

Even though the near-term implications of this budget are substantial, this program is a major commitment to the 600-ship Navy objective and all that implies.

There are valid questions about our ability to achieve this objective. The requested budget for overhauls and shipbuilding is more ambitious than any other in recent memory. And this acceleration in both areas will tax our industrial capacity and technical expertise. This is the thrust of our inquiry today.

I am hopeful that some of my colleagues will join us.

With that, Secretary Sawyer, Admiral Walters, and Admiral Fowler, your prepared statements will be printed in the record. We ask that Secretary Sawyer proceed with a highlight of his remarks after identifying those who will be testifying, and hopefully you will highlight your statements in any way you wish.

INTRODUCTION OF ASSOCIATES

Mr. **Sawyer**. It is a pleasure for me to appear before you this morning with Admiral Walters and Admiral Fowler.

As you have indicated, I have prepared testimony and it is introduced in the record. I would like to amplify it with some remarks this morning.

First, let me say that we are deeply appreciative in the Navy of the support of this committee to our program objectives and particularly in past years, and to be able to report that we are well underway toward realizing our 600-ship objective.

STATUS OF ACTIVE SHIPS

When this administration came into office we had 479 deployable ships in the fleets. The number by the end of this year will be 514 and by the end of 1983 will be 535. We delivered 26 ships in 1981, and this is excluding F. & S., and versus 18 in 1980. We have about 86 ships currently under construction, and plan to deliver 22 more this year.

TICONDEROGA TRIALS

I am pleased to announce that as of today the *Ticonderoga*, the first of the Aegis cruiser ships, is going on her first propulsion trials. Last week, as you may know, the SS–704 attack submarine went out on her trials on schedule.

Basically, as you know, our 5-year program requests 133 new constructions and 16 conversions.

STRATEGIC SEALIFT

Before launching into the shipbuilding program proper I would like to make a few remarks in the area in which this committee has been particularly supportive of the Navy, and that is strategic sealift.

It is an extremely important topic today because of the current state of our Merchant Marine, which has declined and is in rather an impoverished state. This put a heavy responsibility on the Navy to carry out its objective in supporting the defense plans, to acquire or lease assets needed to insure that we can execute the strategy.

As I mentioned this committee in particular has been supportive of some of the acquisition initiatives and the concepts that we have begun to apply and plan for last year. Our near term prepositioned force is now at 13 ships, 11 of which are chartered directly from industry, and the majority of those charters are on long-term basis.

Senator **Stevens**. Mr. Secretary, can you pull that microphone a little closer to you, please.

Mr. **Sawyer**. We have immediate need for three more vessels this year which have been identified and communicated to this committee, that is, ships to carry ammunition for the Army and another ship for medical facilities which could be rapidly deployed, and a third ship to carry lighters which would facilitate ship-to-shore movements. We have submitted reprograming requests to this committee for $39.2 million of fiscal year 1982 funds.

In regard to the MPS ships and also our SL-7 ships, we are moving ahead smartly on both programs. We plan to make our decision on the first flight of MPS ships in June and will provide our rational supporting charter program to Congress by early July. Our SL-7 conversion contracts are planned to commence in September pretty well on schedule.

In addition we have identified a number of projects which are supportive of our sealift program, working with the Maritime Administration in sponsoring both new techniques to enable container ships to be useful to handle military cargoes and also to facilitate ship-to-shore movements, such as the container-to-shore concepts.

One point on our Military Sealift Command is that currently over three-quarters of the budget of MSC goes directly into the private sector. Over 55 percent of the manning of the ships that are currently under the control of MSC are civilian-owned ships and civilian union-manned personnel.

We are looking forward to the future as we expand our programs in that area and I see that percentage going over 60 percent.

READINESS AND SUSTAINABILITY IN TOA

Coming back to shipbuilding and the Navy's SCN, I think it is important that we emphasize that in our budget we are not constraining readiness and sustainability. We still feel that this is a principal objective of the programs and the majority of our TOA in 1983 is still on readiness and sustainability.

Comparing the percentage of the Navy budget requested in 1983 with the mid-1960's, which was a time between the major wars and before Vietnam, we found that the allocation of the Navy budget or the Navy request to the total Federal budget is somewhat smaller than it was in the 1965 and 1966 time frame, and considerably smaller as a percentage of the GNP.

ACHIEVABILITY IN NAVY PROGRAM

I only point those statistics out to indicate that we feel that our program is affordable. I would like to address the question of achievability. We have attempted to structure our programs and plans in the shipbuilding area based on really two precepts.

The first one and most important is the need for stability. Shipbuilding is a lengthy and complicated process, particularly with the complex war ships which predominate our budget, and it takes it on the average about 5 to 7 years to execute a new building program.

5-YEAR PLAN

It has been my personal feeling, and I think certainly the feeling of this administration, that our 5-year program and plan must really be an executable program as opposed to a year-by-year "come as you are" program. It is only through stability that we can communicate to the industrial base the seriousness of the plan and allow them to do the necessary planning and provide the necessary investment to meet the objectives stipulated.

We are working very hard on that, to try to make the FYDP a living document and something that we are deadly serious in executing.

MULTIYEAR PROCUREMENT

A lot of the specific initiatives which the Office of the Secretary of Defense has worked up in conjunction with the Services really lean on the issue of stability. In particular, we have multiyear procurement.

As you know, the Navy has come forward with a total of nine specific projects which we have requested on a multiyear basis, and our current estimate of the savings of those programs is about $465 million, somewhat larger than our original budget submission.

I believe you have the updated numbers which were provided to this committee by Secretary Lehman 2 weeks ago. Now those savings did not include the savings that we forecast in the nuclear carrier procurement approach, of which there has been a lot of discussion and review. That is of course an additional $745 million, currently estimated.

In addition to multiyear there is the economic ordering initiative and we have a number of programs in that regard, with a savings of about $430 million.

COMPETITION

The third area, and one that we feel very strongly about, is competition. I don't think there is any single element that can introduce a more self-correcting process with regard to economy and efficiency than by providing adequate competition in the marketplace. It is not easy to do. It is very difficult particularly with the complex tending to "one of a kind" projects which we initiate, particularly in shipbuilding.

So it had to be applied selectively. It is very much related to the quantity, to the rate and, of course, to the complexitity of the products. But these issues of economic ordering, multiyear procurement and competition all lean back on the area of program stability.

If we have program stability on our contractors, we know that we are going to actually implement not only what is in this year's budget, but with high probability the majority of the other programs and projects indentified in the out years and then we can do the necessary planning and preparation both on our service side and on industry's part to respond to the challenge.

There are a number of other areas and initiatives which we have undertaken, a couple of which I think are important to our shipbuilding programs. I would like to mention them here.

TAILORING PROCUREMENT TO PRODUCT

The first is tailoring procurement to the product. Basically what we mean by this approach is using commercial types for those ships which are basically single-purpose and commercial or auxiliary in nature. There is no sense in overkilling with a combatant ship with a zero spec requirement for a simple point-to-point oiler or other type of auxiliary vessel which can be procured more readily by using a commercial approach. That is not only in technical specifications, but also the procurement.

In some cases like in our SL-7 program, we are actually having the competing shipyards prepare the contract designs in a competitive way. This is the current way that commercial ships are designed and built, not only in the United States, but worldwide.

CONTRACTING PHILOSOPHY

Lastly, in the area of contracting philosophy, we have tried to adopt a posture and image of being fair and consistent. I think it is mainly consistent. It means a good profit for a good performer and a rough time for a bad performer.

I think that we also ought to try to achieve a balanced risk. In other words, when we get into a high risk type of project, and that is usually the case with a first of a kind war ship, that a fixed-price contract is not appropriate and we should consider a cost-plus contract, probably with an award fee basis.

An award fee is a way of providing positive incentive and continual inducement to the contractor to perform well. Our experience with cost-plus award fee contracting in the shipbuilding area has been quite encouraging.

However as the program matures and as the design becomes stable, we would like to change that contract form to a fixed-price incentive, certainly with ever increasing share-lines.

That is our 50-50 share line type contract philosophy that we applied on our attack submarines and with, I think, real success, providing a positive incentive to the contractor to perform on budget or ahead of budget and ahead of schedule. If he tends to overrun, the 50-50 share line has a way of going to zero very rapidly.

In addition, in selective cases we have put certain positive incentives in our contracts to encourage early delivery. An example of that is a contract we recently signed with Newport News on the *Theodore Roosevelt*, CVN-71. In this case we are looking for an early delivery of that major warship and have in our contract mode provided for up to 14 months early delivery, of which we would estimate a savings of $95 million as a gross savings on the project. The contractor would share, if he realizes that target delivery, a percentage of those savings.

OVERHAUL BACKLOG

Senator **Stevens**. Mr. Secretary, how can we go into this shipbuilding program that we all support and at the same time in the one year proposed eliminate our overhaul and repair backlog in the Navy?

Mr. **Sawyer**. You mean from an industrial base?

Senator **Stevens**. From a practical point in terms of financing. On what basis does the Navy propose to do that?

We support the 600-ship goal, but what analysis have you really done of the impact on the industrial base to begin with, and on your budget in out-years with this overambitious program in terms of both new shipbuilding and catching up on our overhaul and repair backlog?

Mr. **Sawyer**. Well, I think Admiral Fowler will get into detail on that. I would like to state for the industrial base standpoint that I wish we really had a problem. Graphically, right now we provide less than 60 percent of the total employment in our U.S. shipbuilding base. I think the statistics for this year is about 55 percent.

We have forecast this very carefully, not only for construction, but repairs and overhauls impacting on the private sector, and I think we go as high as 65 percent in the out-years.

Senator **Stevens**. Could we have that analysis? We keep hearing when we moved the battleship out of the Seattle area down to Long Beach, moving the *New Jersey* down there displaced about four or five vessels that were ready for repair and they had to go somewhere else. There is an indiction that there is a real strain already on the industrial capacity as far as shipbuilding is concerned.

Yet we have not even, as I indicated in my opening statement, we have just touched the iceberg tip as far as this budget is concerned, and the impact in the out-years.

Mr. **Sawyer**. We very carefully forecast our shipbuilding in the naval shipyards.

Senator **Stevens**. We have had no such analysis and we don't have an out-year budget yet from the Navy in terms of its impact of this new shipbuilding program, let alone the repair and overhaul backlog elimination concept.

Mr. **Sawyer**. We will be happy to provide that to you, sir, with regard to its impact on employment and capacity.

[The information follows:]

Shipbuilding Industrial Base

For a discussion of the industrial base aspects, let me refer to Chart 15 of Admiral Fowler's formal statement. It shows the total projected employment for the private sector of the shipbuilding industry. The chart is provided on the following page.

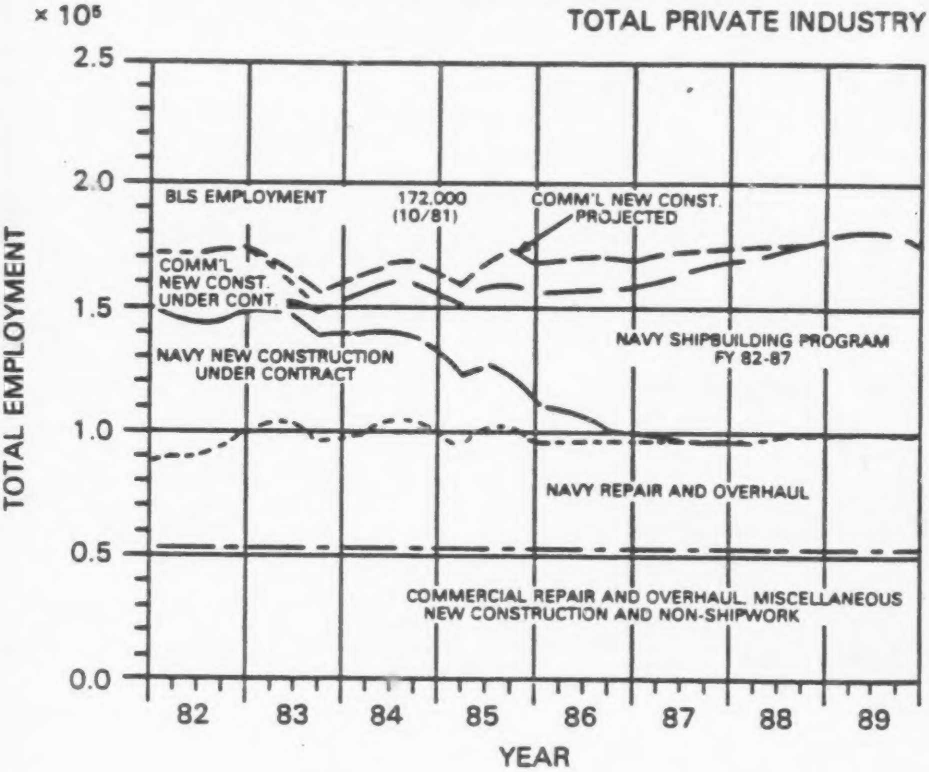
Navy repair and overhaul work is increasing. This is due in part to the effort to reduce the backlog of repair and overhaul work. The mix of backlog work and current repairs and overhaul that can be done in one year is a function of budgetary considerations and the resources available. The industry capacity as a whole is not a problem. Occasionally localized capacity constraints or emergent high priority work such as the New Jersey cause a redistribution of overhaul and repair work, but the overall industrial capacity is more than adequate. We have an industrial capacity constraint on nuclear work and plan our nuclear new construction and repair and overhaul work accordingly.

The graph also shows the increase in Navy new construction work due to the fiscal year 1982-87 shipbuilding program. As a percentage of the total private industry employment, it will increase with this program. However, the total industry employment level is only expected to increase slightly by the late 1980's over the average 1981 level. The latest BLS employment figure is 169,000 as of February 1982. The average 1981 level was 177,800.

When we plan the shipbuilding program, it is a mixture of strategic, capacity and budgetary considerations. Our planning includes Navy and commercial work consisting of repair, overhaul and new construction. Due to the reduced commercial work anticipated, which may actually be even less than the graph shows, the industrial capacity to perform both the Navy repair and overhaul program and the new construction program is there.

CHART 15

RESOURCES AVAILABLE TO PERFORM WORK IN PRIVATE AND PUBLIC SHIPYARDS



SHIPBUILDING IMPACT ON EMPLOYMENT AND CAPACITY

Mr. SAWYER. I would like to quote just a couple of other statistics that come somewhat to that line.

About 65 percent is our maximum impact that we see in the private sector. There are about 172,000 jobs in the U.S. private shipbuilding industry nationwide. With what is going on over on the commercial side—the drying up of title XI mortgage insurance and elimination of the construction differential subsidy, and with the allowance now to the U.S.-flag operators to go abroad to actually buy ships and repair ships, and there are some issues in that regard—the industry just last year has dropped about 15,000, I believe, in overall employment.

There has been some drop in Navy new construction, but not much, the majority has been on the commercial side.

Now it is true that we will have an increasing number of overhauls, particularly nuclear ship or complex ship overhauls, in the out-years. These have been forecast, and this indicates that our Navy shipyards will remain very busy and more work will have to go in the private sector.

The private sector is looking upon that as really now manna from Heaven or a lot of them would go out of business.

We have about 26 major primary deep-draft shipbuilding establishments in the United States. To cover our program as we have identified it in the FYDP, it would necessitate active employment of somewhere between 16 and 18 of those yards and frankly, Senator, I don't know where the other marine work, this is deep-draft ocean-going ship work, is going to come from for the other eight shipyards.

So the situation is ironic. I believe that when you talk with representatives of the shipbuilding industry, you will get reaffirmation of what I am indicating to you this morning.

On the ship repair side, more of the yards that had, in previous years, not been interested at all in Navy work are increasingly concerned with our Navy overhaul business.

INCREASED REPAIR AND OVERHAUL IN PRIVATE SECTOR

Senator STEVENS. Well, you said Admiral Fowler was going to get to it and I will wait and see. The concentration of nuclear shipbuilding repair and overhaul in the projected construction and repair program, with the limited number of those facilities available, aren't you in fact going to end up with an overloading of the Navy shipyards and isn't it going to back out of the private sector as you get into that area, with the nuclear repair and overhaul, and the shipbuilding portion of this nuclear shipbuilding portion of their budget?

Mr. SAWYER. Yes, sir, I think Admiral Fowler will address that in some detail. I will just briefly say that it is true that more work will have to go to the private sector, like that affected by the reactivation of the New Jersey.

Senator STEVENS. You are going to get in the private sector because you do most of that in your own yards, don't you?

Mr. SAWYER. Yes, sir, most of our overhaul and repair work is done in the Navy shipyards, so as more work is required, that tends to keep the naval shipyards busy.

Senator STEVENS. And the nonnuclear work in the private shipyards, don't you?

Mr. SAWYER. Not entirely, it is about a 70–30 split.

Admiral FOWLER. I deal with that issue right now.

FALKLAND ISLANDS DISPUTE

Senator STEVENS. Also you can deal with the question of whether we should be building ships at all in view of what happened down in Argentina in that Falkland dispute. One missile bought in

France and a couple of thousand dollars literally took out a new destroyer.

Now, is there any message for us in terms of this program as to whether it is overambitious or not to be building a new Navy, when we have reached the capacity of one aircraft flying alone with one missile apparently took out a destroyer?

Admiral **Fowler**. I think there is a very definite message there, Senator. First of all the message I get from reading the newspaper is that our sailors and airmen and marines are required to serve in a very hazardous situation both facing the enemy and facing the conditions at sea.

What the British and Argentines are doing down there really brings home dramatically what the conditions are like at sea. It also brings home to me very dramatically that the fights they are conducting there are very close to some of our very important sealanes of communications. We cannot sit back and divorce ourselves from this situation because it is other people fighting, it could be us someday.

We should look very seriously at that situation.

Senator **Stevens**. I don't think that quite answers the question. It couldn't be us. We don't have a Falklands to go and defend and we might have a different situation where we are going to put a blockade around someplace as we did around Cuba once, but as a practical matter that couldn't be us in terms of exposure that the British Navy has there. I hope it will not be us because I don't see any reason to put up.

CURRENT DESTROYER CONSTRUCTION COSTS

What does it cost for a new destroyer now?

Admiral **Fowler**. I hope we won't go to defend the Falklands, but certainly all that we can see indicates that many of our vital resources—critical elements that we need—go through that area of the world. We may very well at some future point be required to defend or keep those sealanes of communication open in our national interests.

Therefore we have got to build the kind of ships that can go in that kind of weather and survive under those conditions. That is exactly what we are doing.

We are looking at all of the lessons that we learned in World War II, when we had lots of people and lots of ships. We are designing our ships so they are survivable and we can put our forces, our Naval Forces and our surface forces and our undersea forces out there and they will be able to protect the U.S. national interest by keeping those sealanes open and be able to defend themselves as well as attack the enemy.

Senator **Stevens**. I will interrupt.

Admiral Walters and Admiral Fowler haven't given their statements yet. We will proceed and we will get back to this and other things that we appear to be learning in the Falklands. I hope we are learning something from the Falklands.

Admiral **Fowler**. Would you like me to cover the shipyard issue?

Senator **Stevens**. Do you have anything else in your opening statement, Mr. Secretary, and if you would like to finish that.

Mr. SAWYER. I would like to make a few more remarks, if I might, Senator.

NAVY BUSINESS SAVING PRIVATE SHIPYARDS

One aspect of our ship construction program, I would like to emphasize and I think your question touches on it, is that I can assure you that right now, if it wasn't for the Navy program, the private shipbuilding industry in the United States would be facing a depression and not just a recession.

I indicated that there is no identified work for the U.S. shipyards of any magnitude outside of the Navy business, and that is new construction as well as overhauls. Shipbuilding is a very labor intensive and high multiplier industry, and for about every dollar spent for SCN another dollar is spent in a multiplier effect.

Moreover, it doesn't all stay in the yards themselves. About two-third of that money, actually 70 percent, spins out through the economy. For every $1 billion of SCN, we have estimated that about 27,000 jobs are generated.

So it is a high-multiplier employment business. The program itself is certainly executable from the standpoint of our industrial base. There is no question about that in our minds, and I think that has been supported by every independent analysis, including CBO's, in their recent review.

Let me say in conclusion that we believe our program is consistent with the national strategy; it is achievable. Currently our shipbuilding performance in new construction would be graded excellent to mildly outstanding.

The majority of our programs are on schedule, and the quality of the ships that we are getting is as high as it has ever been. We are looking forward in the near future to a number of early deliveries and to being ahead of schedule in performance.

Thank you very much.

[The prepared statement of Hon. George A. Sawyer follows:]

PREPARED STATEMENT OF HON. GEORGE A. SAWYER

ASSISTANT SECRETARY OF THE NAVY (SHIPBUILDING AND LOGISTICS)

NAVAL SHIPBUILDING

Introduction.

Mr. Chairman and members of the Committee, I am pleased to have the opportunity to present my assessment of where we are one year after embarking on our program to restore the maritime balance and, in particular, our efforts to rebuild the fleet. Vice Admiral Walters has provided you the statement of the "why" and "what" of our program, I'd like to give you the "how" we are going about it. First though, I want to establish that our program, in absolute terms, is an expansion; but in relative terms, we are trying to recover, regain our maritime strength. Thus, briefly I would like to provide you some perspective on:

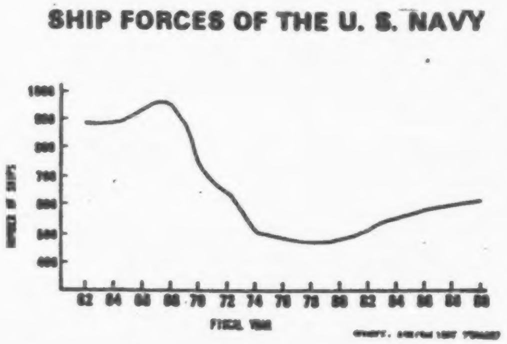
- o U.S. Naval forces and their historic decline in recent years,
- o The current national defense strategy as it pertains to the Navy,
- o Our shipbuilding objectives -- what they are in numbers and types of ships.

Then I will concentrate on how we intend to accomplish these objectives in practical, affordable terms and in consonance with our current industrial base.

While the past year has not seen measurable change in the existing maritime balance, we believe we have achieved significant progress toward returning that balance to one favoring the United States.

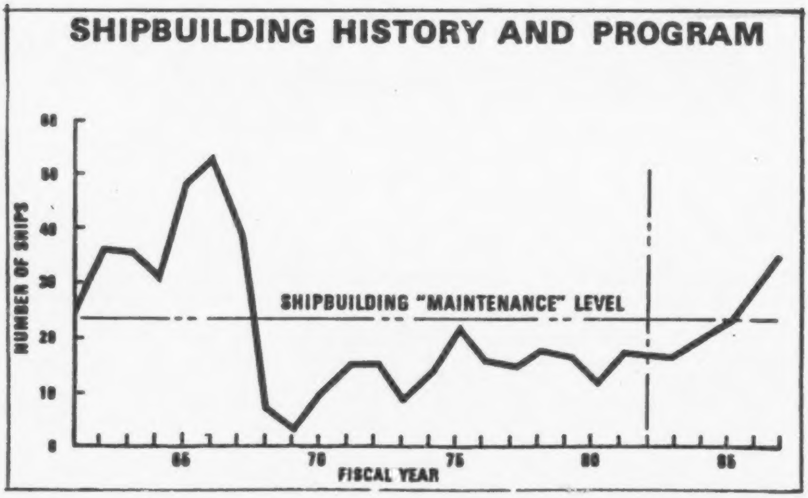
Historical Perspective.

First, let me set the stage for where we are going by examining where we have been. This figure shows the sharp decline we have experienced in U.S. Naval forces over the last two decades.


SHIP FORCES OF THE U. S. NAVY

Although a pure numbers count is not the sole criterion for military capability, it is one valid indicator. Last year, the number of our maritime combatant forces reached its nadir, and, for the first time since World War II, the Chief of Naval Operations indicated that our nation had indeed lost "maritime superiority." This decline has been a combination of several factors that included shifts in defense priorities and our perspective of the threat during the sixties and early seventies.

In order to maintain the minimum required force structure, approximately 21-22 new construction ships annually would have been necessary. This figure displays our production history and program. Note the sharp decline during the Vietnam era -- a point from which we have only begun to recover. As a result of failure to build adequate numbers of ships in the seventies, we must now build up until the minimum essential force is once more achieved, and then continue to build at a sustaining level to maintain that force.



SHIPBUILDING HISTORY AND PROGRAM

A relentless Soviet defense/maritime buildup during the past fifteen years has dissipated our margin of safety and our ability to offer conventional conflict alternatives. Concurrently, our changing economic patterns of industrial activity and trade have resulted in our increased overseas dependency for energy products and other critical resources. In recognition of America's dependency on free use of the seas for access to our allies, markets and resources, the Soviets have taken advantage of the attractive opportunity provided by reductions in ship forces. Today's Soviet Navy is a modern, increasingly capable blue-water force designed to strip the United States of our maritime lifeline and thus threatens our very existence. In short, we have allowed ourselves to become dangerously weak. In recognition of the current imbalance, this Administration has begun to take the steps necessary to make major improvements in the capability of our naval forces as a matter of survival.

Our program to redress this imbalance is designed to meet four key objectives.

PROGRAM OBJECTIVES

- INCREASING OFFENSIVE STRIKING POWER OF THE FLEET
- IMPROVING DAY-TO-DAY FLEET READINESS AND SUSTAINABILITY
- STRENGTHENING OUR ANTI-SUBMARINE AND ANTI-AIR DEFENSES
- INCREASING CAPABILITY OF THE FLEET TO MEET A GLOBAL, FORWARD STRATEGY

Change in Strategy.

Clear maritime strength must be reacquired. We must be capable, as well as being perceived as capable, of keeping our access secure to areas vital to our national interests. Strength at sea is an essential element of our future national strategy. For example, critics who argue that maritime expansion will only be achieved to the detriment of other conventional force programs fail to recognize that none of our projection forces will be viable or credible without the ability to gain entry to, and maintain control over, the regions to which they will be deployed. Of course, our maritime goals do not mean that we must seek to be dominant in all oceans at all times, nor act as the world's maritime policeman.

However, it does dictate a maritime force posture that is flexibly structured, equipped and trained for mobility, simultaneity, and offensive combat -- possessing strike capability at sea, forcible entry capability at the sea-shore interface, and the necessary strategic sealift to sustain combat, both at sea and on land. These Navy/Marine Corps forces are an essential element in the national forward strategy. As Secretary Lehman has indicated, we must prevail, if challenged by the combined military threat of our adversaries, in those areas where our vital interest are involved. Should deterrence fail and conflict initiate between the navies of the United States and the Soviet Union, we believe it will quickly gravitate to one of global dimensions in terns of naval warfare.

This conclusion, in support of national objectives, underlies our change in strategy from a planning scenario of 1-1/2 wars to global conflict, and a maritime force planning from 1-1/2 to 3 oceans.

Rebuilding our Naval Forces.

600 Ship Objective

Reestablishing our maritime capability will provide the United States the capability to carry out the forward strategy necessary to offset any disadvantages of the allied nations on land. We must strive for major investment over the next several years in our shipbuilding and procurement accounts while improving current force readiness -- both for near and long terms. Our FY 1983-1987 program, therefore, contains a significant increase in the number of ships, aircraft, and weapons procured for the Navy. Capability achieved from such investment will not come soon -- there is no "quick fix." It took us over ten years to reach the current, inadequate level of capability, and it may take us the next ten years to recover. As you gentlemen will appreciate, it takes several years to produce one ship even after monies are appropriated. At the same time we are building for the future, we will not neglect the near-term readiness of our forces and their sustainability. Thus, our program strikes a reasonable balance between near-term needs and the long-term goals, all intended to restore a favorable trend in the maritime balance.

A year ago, we outlined a force structure expansion of some 30%, the Administration's objective to build to 15 battle groups, a force of about 100 attack submarines, and a MAF + MAB amphibious lift -- the "600 ship Navy." The program required additional aircraft carriers, battleships, attack submarines, strategic submarines, amphibious assault ships, strategic sealift ships, fleet support ships, mine warfare ships, and other support vessels in order to provide a balanced fleet.

Our plan, aggregated by the new "deployable battle force" categorization is shown on the next table. The comparable force levels in 1970, when this Admin-

ACHIEVING THE 600-SHIP NAVY BY DEPLOYABLE BATTLE FORCE CATEGORY

	FY 70	FY 81	FY 90
STRATEGIC FORCES			
BALLISTIC MISSILE SUBMARINES	41	34	43
SUPPORT SHIPS	10	7	6
	51	41	49
BATTLE FORCES			
AIRCRAFT CARRIERS	19	12	13
SURFACE COMBATANTS	233	187	218
SUBMARINES*	105(58)	87(5)	91(0)
PATROL COMBATANTS	15	1	6
AMPHIBIOUS WARFARE SHIPS	97	59	61
MINE WARFARE SHIPS	64	3	18
MOBILE LOGISTIC SHIPS	68	48	67
	601	397	474
SUPPORT FORCES	89	44	53
MOBILIZATION FORCES CATEGORY A	9	9	37
TOTAL DEPLOYABLE SHIPS	750	491	613

*DIESEL SUBMARINES IN PARENTHESIS.

istration took office (FY81), and our end-of-decade goals (FY90), are presented in the context of a new accounting method which focuses on our most readily deployable ships -- those manned, trained and materially ready for wartime deployment. The "ship count overview" gives you a simple picture of our current plans. But be assured we will continue to take into account other important factors in qualitative technological improvements which, taken in the aggregate, could have a greater potential impact on overall capability than number of ships alone.

When this Administration took office, our deployable battle force numbered 479 ships -- by 1983 we will have 535 ships. Our five-year shipbuilding plan (FY83-87) should produce a fleet of over 600 ships by the early 1990's.

The table below outlines our five-year shipbuilding program.

FY 1983-87 Shipbuilding Program
(Fiscal Year)

Class Name	Ship Type	82 1/	83	84	85	86	87	FY 83-87 Five Year Total
TRIDENT	Ballistic Missile Submarine		2	1	1	1	1	6
SSN-688	Attack Submarine	2	2	3	4	4	4	17
CVN	Aircraft Carrier-Nuclear		2					2
CV	Aircraft Carrier SLEP2/		1		1		1	3
CG-47	Guided Missile Cruiser	3	3	3	3	4	4	17
CG-42	Nuclear Guided Missile Cruiser						1	1
DDG-51	Guided Missile Destroyer				1		3	4
DD	Destroyer					2	1	3
BB	Battleship Reactivation	1	1	1	1			3
FFG-7	Guided Missile Frigate	3	2	2	2	3	3	12
MCM	Mine Countermeasure Ship	1	4	4	5			13
MSH	Mine Countermeasure Ship			1		5	5	11
LSD-41	Landing Ship Dock	1	1	1	2	2	2	8
LHD-1	Amphibious Ship			1			1	2
AOE	Multi-Purpose Stores Ship				1	1	2	4
AE	Ammunition Ship				1	2	1	4
ARS	Salvage Ship	2	1	1				2
AD	Destroyer Tender					1	1	2
T-AO	Oiler	1	1	3	4	4	6	18
T-AGS	FBM Support Ship Conversion				2			2
T-AK	Cargo Ship Conversion				1			1
T-ARC	Cable Ship					1		1
T-AGM	Range Instrumentation Ship Conversion					1		1
T-AGOS/AGOS	SURTASS	4		1		2	3	6
T-AKRX	SL-7 Conversion3/	4	4					4
T-AFS	Stores Ship Conversion	2						
T-AH	Conversion		1	1				2
SUMMARY								
New Construction Ships		17	18	21	24	32	38	133
Conversions/SLEPs/Reactivations		7	7	2	5	1	1	16
TOTAL		24	25	23	29	33	39	149

1/ Shown for information to reflect changed baseline from Carter program.
2/ SLEP - Service Life Extension Program.
3/ Acquisition of eight T-AKRXs will be completed in FY 1982.

Source: FY 1983 Report of The Secretary of Defense

The FY83-87 Shipbuilding Program.

The Five Year Shipbuilding Program provides for construction of 133 new ships and the conversion, reactivation or service life extension of 16 others.

Battle Forces.

First, I would like to highlight our program for battle forces and then discuss our strategic mobility programs. The principal battle force components are:

AEGIS Ships - The plan includes orders for 17 guided missile cruisers (CG-47 Class) and one nuclear-powered guided missile cruiser (CGN-42). Both cruisers will be equipped with the AEGIS combat system, which will enhance fleet capabilities in air defense firepower. By the early 1990s, there will be 25 AEGIS-equipped ships in the fleet.

Destroyers - In this plan, we have initiated the construction of a new, less costly class of surface combatants, the DDG-51. This new destroyer program is intended to replace the large numbers of guided missile cruisers and destroyers retiring in the 1990s. The DDG-51 will be battle-group capable and will be configured to operate in all phases of naval warfare. The first four DDG-51s are in the Five Year Plan.

Attack Submarines - During CY 1981, seven nuclear attack submarines (SSN-688) were delivered to the Navy. This production record is an indicator that previous construction problems appear to be resolved and we expect that production will continue to improve in the future. The Congress has authorized a total of 39 SSNs of this class and the current Five Year Plan adds 17. These submarines are a primary vehicle for the prosecution of anti-submarine warfare and will include modifications for the installation of the vertical launching system (VLS). The VLS will improve the offensive firepower of the SSN-688.

Carriers - A centerpiece of our Five Year Plan is the request in FY 83 for two nuclear-powered aircraft carriers of the NIMITZ Class. The ability of these carriers to project power ashore and to provide for fleet air defense is well known. The current procurement plan intends to take advantage of a multi-ship buy to reduce procurement costs and accelerate deliveries. This acceleration will permit the economic ordering of ship equipments from subcontractors and vendors, strengthen the industrial base, and deliver each of the ships 22 months earlier than previously anticipated.

Amphibious Ships - A major effort in the Five Year Plan is the procurement of ships in three classes of amphibious shipping. These ships will help to provide the additional lift required as we increase capability toward our amphibious lift objective of moving, simultaneously, one marine amphibious force and one marine amphibious brigade. In addition, the ships will accommodate the increased requirements for lift occasioned by modernization of Marine Corps equipment. The plan programs procurement of eight LSD-41 class ships, 2 LHD-1 class, and the initiation of a new ship, the LPDX. The LSD-41 class in intended to replace the LSD-28 class retiring in the mid-1980s. Each of the LSD-41 class will be capable of embarking at least four air cushion landing craft (LCAC), a needed improvement in the ability to transfer troops and equipment rapidly ship-to-shore. The LHD-1 is a general purpose amphibious ship patterned after the LHA design. It will displace about 40,000 tons; will be capable of operating LCACs, V/STOL aircraft, and helicopters; and can serve in a dual capacity as a light support carrier. The LPDX will be a replacement for LPDs retiring in the 1990s.

Landing Craft Air Cushion - The FY 83 budget includes a request for three LCACs. Funding this request will permit advancement of procurement plans by one year. The Five Year Program includes 12 more LCACs than were included in last year's plans. The LCAC, which will replace existing landing craft, improves our ship-to-shore transfer capability by moving troops and equipment, including tanks, at speeds in excess of 40 knots.

Battleships - The Five Year Plan continues reactivation of IOWA plus the two remaining ships of her class. These ships will enhance the effectiveness of the surface action groups with their capabilities in HARPOON, TOMAHAWK and 16-INCH GUNS. At the end of the Program, four battleships will be operating with the deployable forces.

Guided Missile Frigates - The FY83 budget continues production of the FFG-7 class Guided Missile Frigates. These frigates meet our requirements for a relatively inexpensive ship-to-escort naval forces other than carrier battle groups. During the Five Year Program, a number of earlier ships of this class, configured with the LAMPS MK-1 helicopter system, will be transferred to the Naval Reserve.

Fleet Oilers - In order to support the forward deployment of our naval forces, it is clear that additional fleet oilers are required. The TAO Program anticipates the construction of 19 fleet oilers, 18 of these in the next five years. These ships will be operated by the Military Sealift Command and will improve the capabilities of the oiler force without impacting active duty manpower. In addition, the TAO will serve as a model for our efforts in multi-year procurements.

Mine Countermeasure Ships - For a number of years, the U.S. Navy has not been able to counter the growing menace of the Soviet deep-water mining threat. The current Mine Countermeasures Program plans for procurement of 24 ships, incorporating the latest technology in sweeping, hunting, and neutralizing mines. Our deep-water capability is provided by 14 MCM ships, 13 of which are programmed for the next five years. A new class of smaller minehunters, MSH-1, will augment the MCM force in harbor clearance operations and are included in the Five Year

Plan for the first time. The lead MSH is projected for FY 1984 with ten other ships to follow in the 1986-1987 timeframe.

Strategic Mobility.

Combined with the emphasis on battle forces' construction and conversion are several special efforts. Included within this category are ships for the Rapid Deployment Force and ships to be manned by the Military Sealift Command.

These programs mark a real change in our deployment planning strategy and send a clear signal (without undue provocation) to potential adversaries that we intend to ensure access to areas vital to our national interests. Not only does this set of programs mark a change in our military capability, but out strategy to acquire this capability differs markedly from the majority of our ship acquisition programs. Our plan is to capitalize on the current over-tonnage of the free world's merchant fleets in order to buy or charter ships that are already built and adapt them to meet our strategic mobility requirements. The acquisition and conversion of eight SL-7 container ships is an example of the unique vessels and adapting to military needs provides a significant cost advantage to the taxpayer as well as much earlier availability when compared to a new construction program.

There has been confusion over these programs; one, because they have evolved so rapidly, and secondly, they are created to support general purpose forces not fitting into the commonly held perception of naval missions. I believe the following presentation will clear the air. First, let me cover maritime prepositioning, and then I will discuss other sealift initiatives.

Maritime Prepositioning.

It should be noted at the outset that maritime prepositioning programs are considered an essential, **flexible**, responsive and cost-effective enhancement to our nation's austere strategic mobility capability. Recent studies have demonstrated that no other mobility program can introduce more rapidly as much balanced combat power and sustainability to potential trouble spots on or near coastal regions. Maritime prepositioning provides an alternative when political considerations or the need for flexibility constrain fixed, land-based prepositioning.

Maritime prepositioning programs have been established to store equipment and supplies aboard ships in the Indian Ocean. The first, the Near-Term Prepositioning Force (NTPF), provides unit equipment and supplies for a brigade-sized Marine Air Ground Task Force (MAGTF) prepositioned aboard dry cargo and tanker ships chartered and controlled by the Military Sealift Command (MSC). The ships also contain significant amounts of supplies, ammunition, POL, and water for early arriving Army and Air Force units of the Rapid Deployment Joint Task Force (RDJTF). The NTPF is comprised of the original seven Near-Term Prepositioning Ships (NTPS) placed on station in July 1980. Subsequently, the JCS initiated enhancement to this package with funding appropriated in 1981 for six additional ships (Expanded Near-Term Prepositioning Ships - ENTPS). This enhancement improved the sustainability of the MAGTF from 15 to 30 days, plus it added more support for Army and Air Force units. The FY 1983 budget request contains operations and maintenance funding for the continuation of this prepositioned force. These programs reduce response time to the region and provide a test bed for future development of larger long-term maritime prepositioning efforts. Current experience with the preopsitioning force has been good. Stored equipment has been maintained in a state of immediate readiness. Operationally, ships are scheduled underway for about ten days per month, which contributes to their improved operational readiness and security at Diego Garcia.

There is an additional set of programs that are included in the FY 1983 request for which we now desire to accelerate using FY 1982 funds appropriated but not yet authorized. This would permit early FY 1983 deployment for this critically needed capability. ~~Programs include:~~

- The Rapidly Deployable Medical Facility (RDMF)
- An Auxiliary Lighterage Ship (TALS)
- Additional Ammunition Prepositioning

There is an urgent requirement to provide medical facilities to support USMC forces identified for Southwest Asia contingency deployments. Planning is in process to preposition a 1,000-bed medical facility in the region -- the RDMF. We plan to charter shipping for this purpose for $13M. The material is presently being assembled on the west coast and will be ready for loading this spring. In addition, this ship will provide, subsequent to offload of the medical supplies, a capability to augment the intra-theater lift.

Our FY 1982 budget request originally contained acquisition of an auxiliary lighterage ship. This was deleted by Committee action "without prejudice" when it became apparent that the ship contemplated was no longer for sale. The requirement still exists, however. Other candidate ships have now been identified and we anticipate the TALS can be placed on charter this year at a cost of $14M.

In addition, there is a requirement to enhance the early sustainability (primarily ammunition) of early deploying Army combat forces. This program had been originally scheduled for FY 1983 and funds for charter of ships is included in that request. Because of the opportunity to execute the program earlier and the pressing need for this capability, we believe we should proceed as soon as possible. The FY 1982 charter and one-time readiness (sheathing and dehumidification) costs are estimated to be $12.2M.

These three programs total $39.2M. We expect these programs to be continuing requirements.

The funds upon which we are basing this request are contained in the FY 1982 operation and maintenance, Navy Appropriation. The budget justification stated that $60 million would provide for initial start-up costs associated with charter of TAKX ships and emergent requirements to preposition additional material. Recent OSD initiatives for the enhancement of the Near-Term Prepositioned Force (NTPF) have more clearly defined the planned uses of this funding. We recently received proposals for the TAKX ships and concluded that O&M funds for converted ships would not need to be expended in FY 82, thus we would not use $20 million of that appropriation.

At this point, I would like to shift from these near-term efforts and focus on the follow-on programs -- in particular, the Maritime Prepositioning Ships (MPS) Program. This program will ultimately replace that portion of the NTPF program associated with support for the US Marines. MPS will consist of selected unit equipment and supplies to support three brigade-sized MAGTFS. Joint service shipping currently in the NTPF carrying fuel, ammunition and water for USMC requirements will not be replaced when these requirements are assumed by the MPS.

- Maritime Prepositioning Ships (MPS)

The MPS Program resulted from a comprehensive examination by the Navy, Marine Corps, Center for Naval Analysis (CNA) and the Office of the Secretary of Defense, culminating in approval in 1980. The concepts does not pretend to possess, nor be a replacement for the forcible entry capabilities of amphibious forces. Rather it is designed to enhance the ability of the Navy/Marine Corps team to provide the National Command Authority with a wide range of deterrent and force projection options, each with its own discreet signal and each with its own credible and fully integrated combat capabilities. Of equal importance, the MPS program reduces the requirements for less flexible and vulnerable land-based prepositioning while significantly reducing the airlift burden. In view of the significant importance of the MPS program to a viable national military strategy, we are taking steps to accelerate its development while reducing near-term costs be relying on the U.S. Merchant Marine.

The TAKX RFP was issued to industry on October 15, 1981. The cargo predeployed on the MPS consists of large amounts of bulky, heavy military tracked and wheeled vehicles, fuel, water and ammunition. The RFP specifies that all MPS ships (currently designated TAKX) will have multi-cargo capability in order to permit spread-loading, and thus reduce force vulnerability by ensuring that loss of any one vessel will not cripple the force. Accordingly, vessels must have strong decks, high overhead between decks, wide access hatch dimensions and heavy ramp capacity.

Further, in order to ensure that the force can be discharged in austere regions, these ships will have self-offload capability without reliance on developed ports. Technical proposals were received on January 18, 1982, and we are currently in process of evaluating these with contract award scheduled for May 1982. The enthusiastic industry response (over 25 proposals received) has substantiated our confidence in charter program feasibility. The program is envisioned to consist of 12-15 commercial vessels, modified by the offerer as necessary to meet requirements for the three brigade-sized MAGTF.

Our decided preference for acquiring ships for the TAKX mission has been for long-term charter. Thus, funding has been contained in the Operations and Maintenance Request (OM&N). Concern has been registered within the Congress as to: 1) the Navy's experience to ensure success in such a venture, and 2) financial viability of such an approach. First, with regard to experience, Navy has been writing long-term charters for a number of years in the normal course of business, including the Near-Term Prepositioning Force. This experience shows that long-term business arrangements can be completed that are satisfactory to both parties.

The second issue, regarding financial viability, has also been clearly demonstrated. It is anticipated charters will cost less than direct acquisition when compared on a present value basis. Although costing less, at their discounted present value, when compared to an outright procurement program, contemplated contract terms will allow the Navy to purchase the ships should future acquisition of the vessels be desired. The charter approach maximizes competition, minimizes cost, and improves flexibility by increasing the number of vessels available for charter, since foreign built vessels could be reregistered under U.S. flag, and then chartered for use. (Proposals are now being evaluated so further comment in this regard is inappropriate at this time.)

The budget is based upon a charter payment of $20 million annually, exclusive of annual crewing and fuel costs. The present value of this funding stream is roughly equivalent to the present value of the purchase alternative. Should less extensive conversions be feasible, the charter costs would fall. We are hopeful that this will be the case.

In order to meet the current schedule of one MAGTF in FY84, one in FY85, and one in FY87, ships will be chartered in late FY 1983, 1984 and 1986. Funding, therefore, must be available commencing in these years.

In summary, our review suggests that the convert and charter approach for the TAKX will improve the chances for a successful program, because it broadens the number of potential candidates from existing U.S. flag ships to a much broader segment of the world-wide inventory. The responses to the RFP provide a clear indication of feasibility. For once we are telling industry what it is we want done -- not how to do it. We are relying on the private sector for proposals that are imaginative both in terms of ship design and financial management. From the finaicial perspective, a charter program can be constructed which will have a lower present value that the purchase option. Thus, all the conditions necessary for a successful program are evident. Since the proposed acquisition strategy uses the traditional services of the U.S. flag maritime industry, it will serve to strengthen this important industry in consonance with this Administration's policy objectives. Funding for Maritime Prepositioning Programs is shown below:

MARITIME PREPOSITIONING FUNDING

	FY 1981 ACTUAL FUNDING	FY 1982 PLANNED FUNDING	FY 1983 PROPOSED FUNDING	FY 1984 PROPOSED FOR AUTHORIZATION
NEAR-TERM PREPOSITIONING SHIPS (NTPS/ ENTPS) AND DEPOT SHIPS				
$ MILLIONS	131.0	150.0	230.0	253.0
MARITIME PREPOSITIONING SHIPS (MPS)*				
$ MILLIONS	19.0	130.0	320.0	404.4

* INCLUDES BASIC EQUIPMENT ACQUISITION AND OPERATIONS AND MAINTENANCE COSTS.

SOURCE: FY83 DEFENSE REPORT.

Hospital Ship Program (TAHX)

A separate program, but one associated with support of the RDJTF, is structured to provide for necessary mobile hospital capability -- the TAHX.

Last fall, the Navy initiated a program for conversion and purchase/acquisition of a ship or ships for the Hospital Ship Program. New construction, in addition to conversion of existing merchant ships, remains an option at this time. One of the Navy's original procurement alternatives -- convert and charter -- is not currently under consideration. The $300M (SCN) in the FY 1983 budget is the initial requirement of a two-year acquisition with an additional $260 million (SCN) programmed for FY 1984. The $300 million in FY 1983 will purchase and start conversion of the first of possibly two or three ships which we anticipate in the program.

We released a request for proposal (RFP) to industry on September 2, 1981. The RFP specified a preliminary input in December and a final proposal in February 1982. The preliminary input was necessary to allow the Navy to evaluate alternatives to the option of acquiring and converting the SS UNITED STATES. This early review demonstrated that attractive alternatives did, in fact, exist. We are now in the process of evaluating the design proposals submitted last month and expect to award a contract for the design phase in May 1982. Our current schedule calls for the construction or conversion contracts to be awarded in mid-1983. Funding is as shown below:

HOSPITAL SHIP FUNDING (TAHX)

	FY 1982 PLANNED FUNDING	FY 1983 PROPOSED FUNDING	FY84 PROPOSED FOR AUTHORIZATION
$ MILLIONS	2.0	300.0	260.0

Sealift Programs

Sealift is vital for projecting and sustaining our forces. In a large deployment it would deliver armored and mechanized forces as well as support forces, resupply and ammunition. The vast majority of our capability will come from the merchant fleets; yet over the last few decades there has not only been a decline in total number of U.S. flagged vessels, but in the type that are useful in force deployments. Of particular note is the increased numbers of container ships replacing those of the break-bulk type. Our FY 1983-87 program funds initiatives that will increase the capability and reduce the response time of our sealift forces. First, I would like to present our efforts to provide surge sealift and then touch on our strategic sealift support programs. Funding for these programs is shown below:

STRATEGIC SEALIFT PROGRAM FUNDING

TAKRX	FY 1981 ACTUAL FUNDING	FY 1982 PLANNED FUNDING	FY 1983 PROPOSED FUNDING	FY 1984 PROPOSED FOR AUTHORIZATION
PROCUREMENT				
QUANTITY	6	2	-	-
$ MILLIONS	210.0	68.4	-	-
CONVERSION				
$ MILLIONS	-	341.6	325.6	21.4
RRF (O&MN)				
$ MILLIONS	10.4	14.5	19.9	47.0
SEALIFT SUPPORT				
$ MILLIONS	-	-	64.0	187.0

SOURCE: FY83 DEFENSE REPORT

o Fast Logistic Ship Program (TAKRX)

The requirement to move forces rapidly and maintain flexibility has caused us to look for ways to decrease the response time of sealift. Meeting this objective requires ships that can travel at high speeds and be rapidly loaded and unloaded. The acquisition and conversion of high-speed (33 knot) SL-7 container ships will allow us to deploy ground combat units more rapidly. Thus, we consider the fast logistic ship program (TAKRX) as a vital component of U.S. force projection strategy -- combat forces are of little value unless means are provided to insure delivery to potential regions of conflict. This program has involved large prior year costs ($213M), involves considerable near-term investment (FY82-83 - $732.6M), and has substantial future year commitments for operations and maintenance. Six of these vessels were procured in FY 1981. Funds were provided in FY 1982 to complete acquisition of the remaining two ships and to convert four of them for military use. We are requesting funds in FY 1983 to convert the remaining four. Converted SL-7 ships (TAKRX) will become operational commencing in late 1984. (This program should not be confused with the TAKX program which is for prepositioning -- they are not the same nor are they a substitute for one another.) Conversion is essential to permit these vessels to efficiently load and offload equipment, thus capitalizing on their inherent speed and large capacity. When converted, the ships will be combination roll-on/roll-off (RO/RO), and self-sustaining, lift-on/lift-off vessels capable of accommodating the varied spectrum of equipment and supplies of ground combat forces. The ships will be maintained in U.S ports in such a condition that they can be loaded and dispatched within five days of crisis alert.

This program has gone from conception to the point of execution far faster than almost any comparable dollar program since World War II. The goal has been to get the maximum amount of capability, at the lowest cost, as fast as is practicable, and, if capability could be obtained sooner, then temporary solutions should be applied. The need to redress an agreed upon inadequacy in strategic mobility capability, as soon as possible, has resulted in a form of "pre-emptive" program development. The program has undergone many changes over a relatively short period and, thus, considerable misunderstanding exists at a time where we need to be turning plans into action. The tension between the competing demands of cost, time, and capability have created considerable confusion, thus I have had a separate paper prepared that provides detail on the program -- its history, expected capability, and our plans for conversion. I will make it available for use by you and your staffs.

I believe the Navy program to acquire and convert SL-7 ships to meet strategic mobility demands strikes a good compromise by satisfying the competing demands for 1) earliest available capability, 2) cost, and 3) the lift utility/flexibility for the combat forces to be deployed. Enhancements that will utilize sea sheds and flat racks meet the intent of Congress to develop limited capability at the earliest date while insuring that investment in interim solutions provides a positive cost-benefit.

o Ready Reserve Fleet (RRF)

The Navy has also programmed funds to expand the size of the Ready Reserve Force (RRF). The RRF, which is part of the National DEfense Reserve Fleet, contains 27 dry cargo ships that have been maintained to make them available for loading within ten days after notification. This program contributes to the early availability of shipping and reduces the time required to begin sealift operations. The source of ships for the RRF is normally from the operating U.S. merchant fleet and consists of break-bulk ships which are still capable but which are no longer commercially competitive and have been turned in by their owners. We plan to increase the size of the fleet to more than 44 ships, including more than six tankers. Five ships are being upgraded during this fiscal year and funding for maintenance of all 32 ships as well as funding for the upgrade of two more ships is contained in the FY 1983 budget submission.

Until the recent demise of Construction Differential Subsidy (CDS) funding, initial acquisition of ships turned in by owners was accomplished with a portion of the CDS. In the absence of this subsidy, we are planning to pay for the acquisition of additional ships as they become available. This expense is justified since adding ships to the RRF is the most economical and cost effective means by which we can assure adequate sealift to meet worldwide contingency sealift surge requirements. We plan to work with MARAD in negotiating equitable terms; assure that we are not purchasing still useful, operational ships; and will pay some amount between scrap and book value for these ships.

o Strategic Sealift Support Program

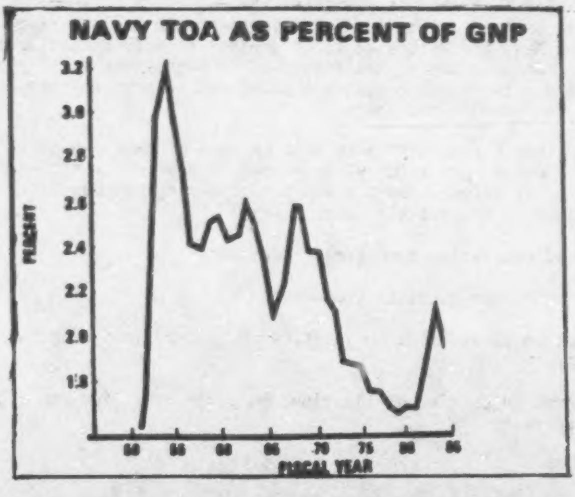
Our reinforcement and force projection strategies rely heavily on lift provided by the Merchant Marine. In view of the recent trends discussed earlier, current commercial vessels operate between well developed ports that provide on- and off load capability with sophisticated shore-side equipment; with few exceptions, these vessels have limited self-sustaining capability. Regions of the world where our strategic interests are located often do not have such facilities, or, in time of war, we could expect such facilities to be denied for our use or destroyed. For example, deployments to Southwest Asia may require the discharge of dry and wet (fuel and water) cargoes in unimproved ports or over the beach. Thus, when these ships are called into support of force deployments, we would be required to add or improve communications and provide a self-sustaining capability. In addition, where capability cannot be made an inherent part of the ship, we must acquire equipment to assist in discharge functions. To provide offload capabilities in these austere regions we have initiated programs to offload ships (to include container, break-bulk, and tanker vessels) in undeveloped ports and over-the-beach. These programs will enhance the flexibility of our sealift resources and increase the military utility of our valuable merchant sealift resources. The table below highlights some of these programs.

PROGRAM	DESCRIPTION
COTS - CONTAINER OFFLOAD & TRANSFER SYSTEM	THIS SYSTEM WILL ENABLE A CONTAINER SHIP TO DISCHARGE IN AN UNIMPROVED PORT OR IN A ROADSTEAD. THE AUXILIARY CRANE SHIP(TACS) IS ONE OF THE MAJOR COMPONENTS. THIS IS A MODIFIED CONTAINERSHIP WITH TWO GANTRY CRANES. BASED ON THROUGHPUT RATES AND CARGO OFFLOAD REQUIREMENTS FOR SWA CONTINGENCIES OUR OBJECTIVE IS TO PROCURE 11 TACS.
SHIP-TO-SHORE DISCHARGE SYSTEMS	CONTAINS SUCH SYSTEMS TO IMPROVE OFFLOAD IN AUSTERE P[illegible]S: • PCS - PONTOON CAUSEWAY SECTIONS • SLWT - SIDE-LOADING WARPING TUG • CSNP - CAUSEWAY SECTION, NON-POWERED • ELCAS - ELEVATED CAUSEWAY • OBFS - OFFSHORE BULK FUEL SYSTEM • MOORING BUOYS -
MLSF IMPROVEMENTS -MOBILE LOGISTIC SUPPORT FORCE	ADDITION OF THE "SLIDING PADEYE" TO MERCHANT SHIPS WILL PERMIT THESE VESSELS TO WHOLESALE TO THE MLSF VESSELS, THUS SAVING LONG MLSF TURN-AROUND TIME.
PLATFORM IMPROVEMENT SYSTEMS	ACQUISITION OF SYSTEMS TO IMPROVE UTILITY OF MERCHANT CONTAINERSHIPS. • FLATRACKS • SEA SHEDS

I believe our prepositioning and sealift programs provide a significant contribution to our ability to offer conventional response alternatives as well as a viable deterrent capability. This program is balanced to provide the taxpayer maximum advantage for the dollar and the National Command Authority maximum leverage and capability during times of tension or actual crisis.

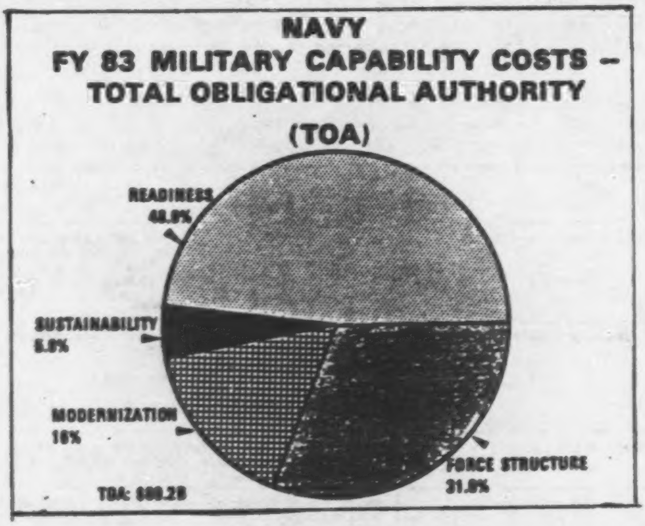
Affordability

It is my firm conviction that our great nation can afford the increases requested in the FY83 budget. This Administration's promise to "re-arm" America does no more than return this nation to a level of defense expenditure approximating those of the 1960's. As shown in Figure 6, the requested levels of spending to rebuild our naval forces, in particular, measured in terms of the Navy budget as a percent of the GNP, will not reach the levels that our nation demonstrated as affordable in the 50's and 60's -- an era when the international situation was less tense, our relative position in the world was far more secure, and the great armada of ships that we had amassed in World War II was still relatively young.



These trends, as well as the past neglect of investment requirements, have helped size our request. As mentioned previously, much of the Navy increase is in investment -- shipbuilding and conversion.

Some concern has been expressed that we may be mortgaging our future at the expense of the present -- particularly in readiness and sustainability. This figure displays allocation of Navy resources in terms of the DOD "Pillars": 1) force structure, 2) force modernization, 3) force sustainability, and 4) force readiness.



We will allocate greater than 50% of our FY83 budget to readiness and sustainability for our existing forces as we rebuild the fleet. During the next few months, as we review our Five Year Program, continued attention will be focused to insure a balanced allocation between investment and the funding for ownership.

In summary, we believe our approach to expansion is both affordable and achievable. We are programming to meet requirements; the industrial capability exists; and we intend to manage the resources provided to gain the greatest return on the taxpayers' investment.

Business Management

Intensive management on our part will be required in order to properly execute this plan. We are concerned about cost growth and are initiating aggressive programs to insure that the taxpayers' dollar is spent wisely. As an example, we have a head start on improving managerial efficiency. President Regan's amended budget for FY 82 placed special emphasis on economies and efficiencies in DOD, emphasizing savings to offset the overall increased Defense budget. The FY 83 budget maintains that spirit with specific programs identified. The resultant economies, efficiencies, and dollar savings for the Department of the Navy are estimated to be greater than $9 billion over the FY 81-87 period. As an example, the figure below highlights multi-year procurement savings. Since the FY 83 budget was submitted we have revised savings estimates which are included in the table.

The CVN multi-ship acquisition is another case of this important cost-saving strategy. Based upon a fully-funded two-ship procurement, we will realise the most economic, efficient, rapid means for obtaining two new CVN assets. Approximately $750M in savings will accrue from:

- Reduced escalation from earlier delivery
- Economic order quantity procurement
- Reduction of duplication in start-up, set-up, and other non-recurring costs
- Improved production utilization, manpower levelling and labor productivity

ECONOMIES AND EFFICIENCIES ($M)
MULTI-YEAR PROCUREMENT

	FY83 CONGRESSIONAL BUDGET SUBMISSION		REVISED ESTIMATES SUBSEQUENT TO BUDGET SUBMISSION
	FY83 TOA INCREASE	5-YEAR SAVINGS*	5-YEAR SAVINGS*
AIRCRAFT			
C-2	32.4	58.4	58.2
EA-6B	9.1	21.1	38.5
A-6E	5.0	20.3	50.7
CH-53E	29.9	35.0	92.8
WEAPONS			
SM-1 MISSILES	48.1	62.7	69.4
NATO SEASPARROW MSLS	9.0	37.2	37.0
MULE LASER DESIGNATORS	10.5	5.5	5.5
MK-46 TORPEDOES	34.5	40.4	38.1
SHIPS			
T-AO FLEET OILERS	109.8	66.5	75.0
TOTAL	288.3	347.1	465.2

*AMOUNT REPRESENTS SAVINGS ABOVE AND BEYOND RECOVERY OF THE FY83-87 INVESTMENT AMOUNT.

As a former businessman who has spent 20 years in engineering construction activity, I can appreciate the underlying logic and potential pay off of the acquisition initiatives proclaimed by this Administration. Two of these initiatives can apply as well in shipbuilding as in any other acquisition area - namely, multi-year procurement and competition. Nevertheless, to be truly effective, both of these "initiatives" require the essential ingredient of program stability. Many of our specific ship acquisition strategies are now rooted in the expectation that our Five Year Shipbuilding Program will remain reasonably stable. This Committee in particular is well familiar with the practices of the past, which can be summarized by the phrase, "budget for the next year and wish for the outyear." Yet, we recognize intuitively that a succession of one-year plans cannot execute efficiently major programs whose time constraints, from inception to delivery, range at best from four to six years. Multi-year procurement can and will work. However, together we must have conviction and agreement on what we want to buy over a period of time measured in years, along with the courage to commit to the best procurement plan possible. Similarly, the added up-front costs, incurred by introducing competition in a major acquisition program, can be paid back in out-year savings only if we are reasonably certain of both the quantity and rate of production in those outyears.

As a consequence, our CVN multi-year procurement and our CG-47 second source initiatives are both rooted in a common objective: namely, to best mobilize and motivate our industrial base. We want to build these two highly complex and essential classes of ships as efficiently as possible as reflected in our Five Year Force Building Plan.

Our current ship acquisition strategies and business contract policies are realistic. They have been tailored explictly to:

- The quantity and rate desired
- The engineering complexity and type of service intended
- The construction lead time and difficulty involved
- The increasing technical sophistication and improving construction capabilities of our shipbuilders
- The current and future production capacity of our industrial base
- The realistic extent of competition which can be achieved

- Our own in-house engineering and management capabilities

Thus we have moved away from simplistic, inflexible procedures and toward more flexible, equitable contract policies. These policies are intended to share the risk between our contractors and ourselves as fairly as possible, based on a thorough and objective evaluation of the engineering/construction realities involved.

FY 83 Demands on Industry

If the FY83 shipbuilding plans, as I have outlined earlier, are approved, the Navy will seek to enter into contracts with private industry for some 25 ships, 18 of which are to be new construction. All of the new ships will be constructed in private yards with the seven conversion/SLEP/reactivations going to a mix of public and private yards.

Industry Willingness and Capability to Respond

During 1981, the total shipbuilding and ship repair industry remained on a fairly even keel. However, individual shipyards suffered the sort of unpredictable changes familiar to observers of the industry. Employment in the total industry, as recorded by the Bureau of Labor Statistics continued to show a slight increase. As of the end of November 1981, total employment in the industry had reached 176,400. This compares to a December 1980 total of 172,000.

The Naval shipbuilding program is on the threshold of one of the most promising periods for the shipyard industry in peacetime history. Conversely, the potential merchant shipbuilding program is approaching a nadir not seen since 1953-54 time frame. There is justifiable concern about the health of the industry in general, and the Navy cannot carry the total burden. Without a dramatic change in the current environment of our U.S. flag merchant marine, closure of several primary yards seems likely over the next few years. This would be unfortunate for two reasons -- first, the nation will lose desirable mobilization or "surge" capacity; and secondly, shipbuilding is a very labor-intensive industry with a highly leveraged economic multiplier effect. Thus, the Navy has taken extensive measures to ensure our plans to regain maritime superiority include certain significant "health-improvement" measures to the U.S. Merchant Marine where practical and economical.

Much has been said (and, in my own opinion, much of it erroneous) about the ability of our national industrial base to respond to the challenge implicit in building a 600 ship Navy. Although there have been and will continue to be specific problem areas in our program -- primarily relating to highly specialized vendor supplied items and critical source materials -- the nation's primary shipbuilding base is more than adequate to address our needs.

The active U.S. shipbuilding base consists of 27 shipyards that have indicated they are building, or are interested in building, naval or merchant ships. The total number of employees in this base has slipped since the end of 1980 from 119.1K to 116.4K. The total of production workers has slipped even more from 98.0K to 90.7K. It is this latter portion of the overall shipbuilding and ship repair industry upon which the country's shipbuilding capability depends. A continued trend of attrition of this base could present problems, especially in the skilled trades area. The table below summarizes the major U.S. shipyards involved in U.S. Navy and deep draft ship construction:

MAJOR U.S. SHIPBUILDING YARDS
DECEMBER 1981

	Total Plant Employees (000)	Total Production Workers (000)	Building Category		
			I	II	III
ATLANTIC COAST					
Bath Iron Works	6.6	5.9	x		
General Dynamics, Quincy	3.3	2.2	x		
General Dynamics, Groton	23.0	19.7	x		
Bethlehem Steel, Sparrows Pt.	2.3	1.6		x	
Maryland Shipbldg & Drydock	1.4	.9		x	
Newport News Shipbldg & Drydock	23.5	15.4	x		
Norfolk Shipbldg & Drydock	4.4	3.4			x
Pennsylvania Shipbuilding Co.	2.3	1.7		x	
Total Atlantic Coast	66.8	50.8			
GULF COAST					
Tampa Ship Repair & Drydock	.5	.5			x
Alabama Drydock & Shipbldg	1.4	1.0			x
Litton/Ingalls, Pascagoula	12.4	10.4	x		
Avondale Shipyards	6.3	4.1	x		
Halter Marine Services	2.7	2.2		x	
Equitable Shipyards	.6	.5			x
Levingston Shipbldg, Orange	2.0	1.6			x
Todd Shipyards, Houston	.5	.4			x
Todd Shipyards, Galveston	.6	.4			x
Total Gulf Coast	27.0	21.1			
PACIFIC COAST					
National Steel & Shipbldg	6.3	5.1		x	
Todd Shipyards, San Pedro	3.9	3.5	x		
Bethlehem Steel, San Francisco	.6	.4			x
Tacoma Boatbuilding Company	2.6	2.1		x	
Todd Shipyards, Seattle	4.3	3.6	x		
Lockheed Shipbuilding, Seattle	1.8	1.5	x		
Total Pacific Coast	19.5	16.2			
GREAT LAKES					
American Shipbuilding, Lorain	.2	.1			x
Peterson Builders, Inc.	.8	.7			x
Bay Shipbuilding, Sturgeon	1.3	1.2			x
Marinette Marine Corp.	.8	.6		x	
Total Great Lakes	3.1	2.6			
GRAND TOTAL	116.4	90.7	9	7	11

CATEGORY:
I - Combatant Capable (plus Amphibious/Auxiliary and Merchant)
II - Amphibious/Auxiliary Capable (Plus Merchant)
III - Merchant Capable (Only)

SOURCE: MARAD
IDA
ASN(S&L)RPE 23MAR82

Private Shipyard Investment

The entire burden and risk of the Administration's Five Year Shipbuilding Program is not resting solely on the public sector. Private venture capital is responding to the intent and the resolve of this Administration to provide for the long overdue rebuilding of the fleet. Private investment in the nation's shipyards is intended to improve productivity and enhance capacity to ensure that the shipbuilding industrial base can support the Five Year Program on time and within cost.

The Navy is working with the private shipbuilding firms to identify projects that will enhance their productivity. The table below provides examples of privately funded capital investment projects:

EXAMPLES OF PRIVATELY FUNDED CAPITAL INVESTMENT PROJECTS

SHIPBUILDING FIRM	INVESTMENT DESCRIPTION
Avondale Shipyards, New Orleans, LA	Has invested over $6M in a new automated pipe shop. $40M is being invested in a new dry dock and facilities.
Bath Iron Works, Portland, ME	Is making a large extension to its assembly and pre-outfitting operations. Acquiring a new facility utilizing a 81,000-ton floating drydock.
Lockheed Shipbuilding and Construction, Seattle, WA	Is extending piers and dredging at piers to handle deeper draft large combatant ship overhauls.
National Steel and Shipbuilding, San Diego, CA	Has invested $6M in on-going capital improvements. The company is also considering investing an additional $40M and opening a South Bay annex.
Newport News Shipbuilding, Newport News, VA	Has installed a $29M nuclear refueling facility. Is making a $20M upgrade of its commercial "North Yard" to take on Navy work. Plans to spend $400M for further improvements over the next 5 years.
Northwest Marine, Portland, OR	New lathe and boring equipment.
Peterson Shipbuilders, Sturgeon Bay, WI	Technology upgrades.
Todd Shipyards, Los Angeles, CA	Installing a synchro-lift which will increase lift capacity from 13,000 to 15,000 tons from a land-level facility.
Todd Shipyards, Seattle, WA	Is moving a 40,000-ton drydock from San Francisco. Is putting $16M into new outfitting piers to handle battleship-size vessels.

In addition to the privately funded capital investment projects listed, General Dynamics has made the following investments:

Electric Boat

Land level construction facility at Groton, Connecticut	-- $160M
Automated cylinder manufacturing facility at Quonset Point, Rhode Island	-- $117M
Additional on-going improvements	-- $33M

Quincy

On-going improvements	-- $49M
Liquid natural gas tank construction facility in Charleston, South Carolina	-- $65M

Small Business Considerations

U.S. shipbuilding is a high concentrated industry. Less than 5% of the total private shipbuilding/repair companies in the United States employ over 1000 production workers. Yet, this 5% of the industry employs over 2/3 of the total private shipyard work force and accounts for over 2/3 of the total industry business. Nevertheless, for over 20 years the Navy has had an active Small Business Program, and we have aggressively pursued this program in response to the intent of the Congress and the Administration.

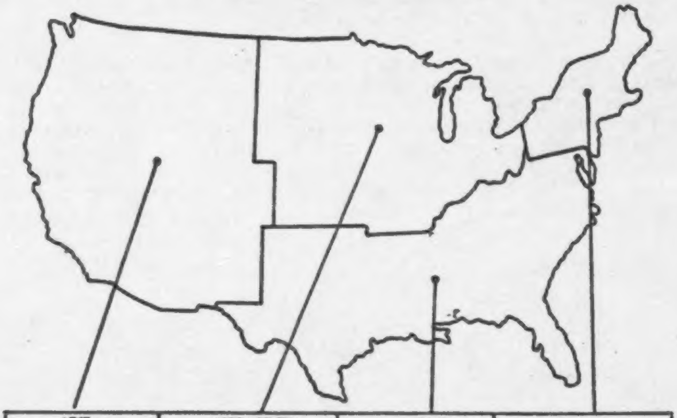
Last year (FY 1981), for example, the Navy exceeded its Small Business and Small Disadvantaged Business goals by a significant margin; over $4.1 billion in goods and services were procured through small business enterprises. The Naval Sea Systems Command, in particular, achieved 110% of its Small Business procurement goals, and in the area of Small Business set aside ship-related procurement, the Command exceeded its goal by over 50%. That is not to say that everything in the Small Business area is proceeding without difficulty, but we are getting the job done, obtaining fair value for the taxpayers' dollar, and meeting the objectives set forth.

Benefits to U.S. of Navy's Force Building and Modernization Program

The expansion of the Navy Shipbuilding Program is a formidable, but not insurmountable, management problem. It will require the proper utilization of those resources that are specialized or limited. On the other hand, it can be expected to produce a significant contribution to U.S. economic recovery. Our plan provides for a measured increase in capability within our industrial capacity; it is structured to take advantage of multi-year procurement which will encourage private investment in capital improvements, result in significant economies, and permit stable employment levels. Our review has led to a conclusion that Defense spending oriented on Navy Shipbuilding Programs is a good investment. It is particularly beneficial, in comparison to many federal programs, at a time when the economy is lagging and we have experienced a long period of neglect toward investment in naval and logistics support ships. The results are much line "priming" the economic pump -- the shipbuilding dollar produces revenue nationwide; there are significant economic "multipliers"; jobs are created; and federal revenue is produced through corporate and individual income taxes. At a time when both the economy and Defense are in need of a boost, expanded budget allocations to shipbuilding make sense and are a good investment toward reaching national objectives for the economy and Defense.

The economic impact of a dollar spent on shipbuilding goes far beyond the prime contractor (shipyard). The value of the work accomplished in the shipyard is seldom the majority of the total systems cost, since shipbuilding is supported by other industries and services nationwide for electronics, marine equipment, engines, valves, and other products, materials, and services procured by either the Navy or the shipbuilder. For example, for complex, high technology ships such as the CG-47 cruiser, for every dollar spent in the shipyard, one and one half dollars are spent with the supporting industries for the ordnance, sensors, computors, and other highly sophisticated technological equipment. The figure below shows the estimated geographic distribution of FY 83 funds that would be appropriated for shipbuilding based on our budget request. Contrary to intuition, the dollars just don't "stick" at the few shipyard locations -- they are pervasive throughout the nation.

FY83 SHIPBUILDING & CONVERSION (SCN)
PROJECTION OF ECONOMIC DISTRIBUTION

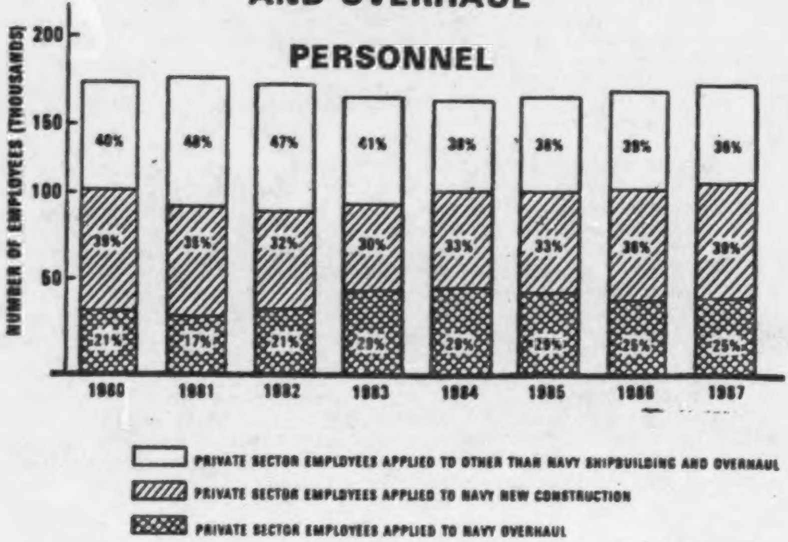


	WEST	NORTH CENTRAL	SOUTH	NORTHEAST
% POPULATION	18	27	32	23
$ SCN	$1.6B	$3.4B	$7.3B	$6.4B
% SCN	8	18	39	35

SOURCE: ASN(S&L)PPE 10MAR82

Focusing only on the shipbuilding industry, at the present time, naval shipbuilding and conversion accounts for almost 53% of the total ship construction and repair industry employment in this counrty. Regionally, 85% of the shipyard workers engaged in ship construction on the Atlantic Coast are assigned to Navy ships and 80% on the Pacific Coast. On the Gulf Coast and in the Great Lakes, that number is above 40%. The figure below shows that planned naval new construction and overhauls account for approximately two-thirds of the total private sector capacity over the next five years. Admittedly, this is a large contribution, but the figures indicate that our program is executable.

PRIVATE SECTOR SHIPBUILDING AND OVERHAUL



SOURCE: NAVSEA 90
18 FEB 1982

Conclusion

I firmly believe that we have set forth a proper and balanced naval ship construction and general procurement program responsive to our national strategy. Moreover, this program -- although ambitious -- is technically and industrially feasible. When regarded in the context of the current threat and the precedent of the nation's historic, post World War II resource allocation, I firmly believe the program is also "affordable."

In terms of specific acquisition and contract procedures, we have embarked on the right course as evidenced by the generally good to excellent current performance of our shipyards. I wish to assure this Committee that we in the Navy intend to manage just as fairly, knowledgeably and responsibly as we can the precious resources allocated to rebuilding the fleet.

Mr. Chairman, this concludes my remarks. I am prepared to discuss any questions that the Committee may have.

NAVAL SEA SYSTEMS COMMAND

STATEMENT OF VICE ADM. EARL B. FOWLER, JR.

Senator STEVENS. Admiral Fowler.

Admiral FOWLER. Thank you very much, Mr. Chairman. I am very pleased to be here this morning and I have a prepared statement which is quite lengthy. I would like to submit it for the record. But I would like to make an oral opening statement as well.

The Naval Sea Systems Command's role in fleet maintenance and modernization is to provide all required technical, industrial, and logistic support for maintaining, modernizing, and improving the performance of ships, ship systems, and specific nonship systems throughout their life cycles.

NAVAL SHIP OVERHAUL PROGRAM

I would like briefly to provide a profile of the naval ship overhaul program, a report on the performance of the program and on key management initiatives being taken to improve ship maintenance and modernization.

Finally, I will summarize the primary issues emerging from these maintenance and modernization efforts.

The Navy's current active fleet contains 476 ships and the current Navy Reserve force contains 42 ships. Determination of where to overhaul ships is based largely on the Navy's policy of attempting to overhaul ships in or near the ship's home port. This policy minimizes family disruption and improves crew morale, thereby retaining personnel.

Other key factors considered in determining the industrial facility at which a ship will be overhauled include ship complexity; fleet operating schedules and material readiness requirements; shipyard workload and qualifications; shipyard capacity and capability in the home port areas; and defense acquisition regulations applicable to private sector competition requirements and small businesses.

Generally, only public shipyards are capable of overhauling our most complex ships. However, private shipyards are frequently employed for the accomplishment of overhauls of less complex ships. The Navy will continue to accomplish a minimum of 30 percent of ship maintenance and modernization work in the private sector.

We project that the number of ship overhauls will increase over the next 5 years. Future workload projections for these ship overhauls reveal a growing workload for both the public and private sectors. although the fiscal year 1983 program is executable within the currently assigned numbers of supervisors of shipbuilding personnel, to support the larger private sector workload for fiscal year 1984, supervisors of shipbuilding employment must increase 10 percent, from 4,411 to 4,823 personnel, along with requisite funding, to properly contract for and manage the private sector repair and new construction workload.

SHIP OVERHAUL PERFORMANCE

Ship overhaul performance is measured by schedule adherence, cost, and quality. In the aggregate, we have made progress in ship overhaul performance, particularly in private sector surface ship overhauls where we initially placed our emphasis.

For 1982 and 1983, the following demanding ship overhaul performance goals have been set: a minimum interval of 90 days between contract award and overhaul start in a private shipyard; zero days late schedule, zero cost growth as compared to preoverhaul cost estimates; and a maximum of 10-percent growth of final contract cost over original contract award.

Accomplishment of these difficult goals will require new and imaginative strategies. I believe that we have such strategies in our ship maintenance and modernization improvement initiatives.

DEPOT OPERATIONS IMPROVEMENT PROGRAM

In January 1981 I established the depot operations improvement program [DOIP], a program devoted to finding solutions to identified overhaul problems in a coordinated and focused manner. Because I believe overhauls to be of such vital importance, I have placed this program under my personal direction.

At no time has the Navy invested as much of its resources in improving ship overhaul performance as it is doing now; nor have these efforts been so tightly focused on the areas of expected high return. Because of these efforts, major improvement initiatives have been implemented, many of which are already beginning to reap benefits in terms of performance improvement.

IMPROVEMENT INITIATIVES

Improvement initiatives, which cover all facets of the program, have been grouped into eight program elements. Included within these elements are the following: Ship overhaul policy has been clarified by the issuance of additional instructions on overhaul procedures. Command and control has also been clarified by making individual shipyard commanders and Supships personally responsible for achieving overhaul success.

There has been an increased use of negotiated procurement procedures in surface ship contracting, as recommended by GAO, as well as increased use of multiship contracts and cost-type contracts. Navy and private industry cooperation has also been improved.

Utilization of a system of Navy port engineers, similar to a system used by private industry, along with the development of the combat store ship [AFS] phased-maintenance program [AFSPMP], has allowed early completion of two AFS overhauls.

OPERATION AND MAINTENANCE SCHEDULE

Based on deployment information gathered thus far and on outyear projections, the prospects for achieving enhanced stability and consistency in the operation and maintenance schedule are favorable. Quality of overhaul has been maintained and a slight improvement in ship availability is indicated.

Already, for fiscal years 1980 and 1981, actual depot level maintenance man-day expenditures, when compared with the projected maintenance costs that would have been incurred without the program, reveal a savings of 18,185 man-days.

FLEET MODERNIZATION PROGRAM

The fleet modernization program [FMP], which improves the mission capabilites of existing ships, has been effective in upgrading the fleet's military capabilities and overall readiness. Approximately 2,500 alterations are being installed annually, with the number of completed alterations closely approximating the number originally programed. Although the FMP continues to function successfully as planned, we are constantly monitoring this program to identify weaknesses and initiate corrective actions to improve its effectiveness.

The Congress has responded favorably to the Navy's request for shipyard modernization funding. Although these requests have been constrained by the Navy's overall priorities and existing budget limitations, increased funds will be allocated for shipyard modernization as funding permits.

The initiatives noted above to improve the overall process are extensive, but they are being closely coordinated and managed at the highest levels of NAVSEA. While the full impact of these initiatives will not be felt until the 1983-84 time frame, all signs indicate that we are on the right track in our improvement program.

As we progress toward a 600-ship Navy, we must develop a strategy and detailed plan that will support both the current and future ship maintenance and modernization needs. Our fleet maintenance and modernization strategy is composed of the elements required to allow us to meet these goals.

I have endeavored today to provide you with an accurate assessment of our progress over the past year in improving ship overhaul performance. I believe we have made substantial improvements, particularly with surface ship overhauls in the private sector. We are moving in the right direction. The improvements we have achieved thus far have strengthened our resolve to achieve our stated performance goals.

The Congress can be instrumental in our efforts to improve our overall performance, and consequent military readiness, by continuing to provide strong support of our public shipyard program, our requirement for sufficient numbers of public shipyard and Supship employees to properly maintain our nuclear fleet and combatant ships; and, our efforts to provide incentives to the private sector to develop and maintain the skills and facilities required to handle effectively the increasing number of complex ships being assigned to the private shipyards.

Mr. Chairman, this concludes my prepared statement. I will be happy to respond to your questions.

[The prepared statement of Vice Adm. Earl B. Fowler, Jr., follows:]

PREPARED STATEMENT OF VICE ADM. EARL B. FOWLER, JR., USN
COMMANDER

NAVAL SEA SYSTEMS COMMAND

I. Introduction

Mr. Chairman and distinguished members of the Subcommittee, I am Vice Admiral Earl B. Fowler, Commander of the Naval Sea Systems Command. It is a pleasure to appear before you to discuss the execution of the Naval Ship Overhaul Program and report our progress in improving performance.

The Naval Sea Systems Command's role in fleet maintenance and modernization is to provide all required technical, industrial, and logistic support for maintaining, modernizing, and improving the performance of ships, ship systems, and specified non-ship systems throughout their life cycles.

My remarks will (1) provide a profile of the Naval Ship Overhaul Program; (2) report on the performance of the program; (3) discuss the key management initiatives being taken to improve ship maintenance and modernization; and (4) summarize the primary issues emerging from these maintenance and modernization efforts.

II. Profile of the Ship Overhaul Program

The Navy's current active fleet of 476 ships comprises 13 aircraft carriers, 127 submarines, 190 surface combatants, 59 amphibious ships, 61 mobile logistic ships, 21 support ships, and 5 mine warfare and patrol ships. The current reserve force of 42 ships includes 7 surface combatants, 6 amphibious ships, 1 mobile logistic ship, 6 support ships, and 22 mine warfare ships. Chart 1 shows our major active fleet concentrations by geographic area.

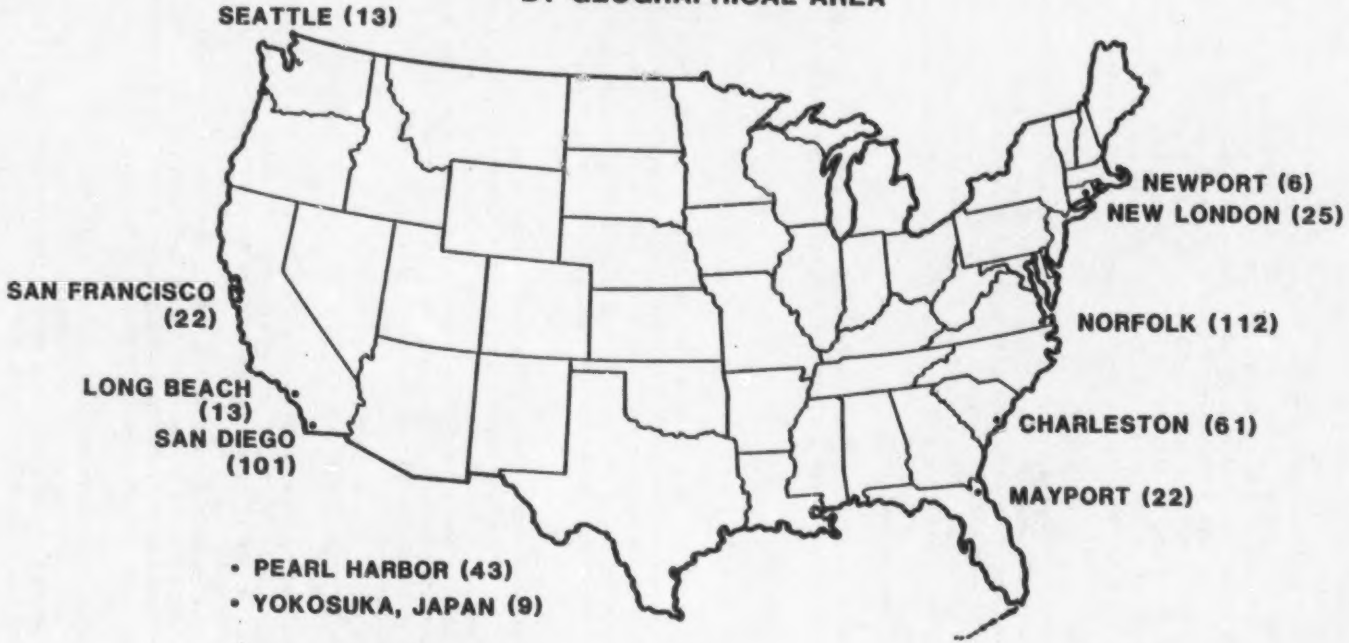
The Navy's policy is to overhaul ships in or near the ship's home port to minimize family disruption and improve crew morale, thereby retaining personnel. Other key factors considered in determining the industrial facility at which a ship will be overhauled include:

- Ship complexity (nuclear or non-nuclear propulsion and the type of weapon systems).
- Fleet operating schedule and material readiness requirements.
- Shipyard workload and qualifications.
- Shipyard capacity and capability in the home port area.
- Defense Acquisition Regulations applicable to private sector competition requirements and small businesses.

Public shipyards overhaul our most complex ships: submarines, cruisers, carriers, guided missile destroyers, and frigates. A large investment in specialized skills, facilities, and equipment is required on the part of the public shipyard to overhaul and modernize these ships. Ships of lesser complexity (such as amphibious, auxiliary, and support ships) have been overhauled in private shipyards, generally. Only one private shipyard is engaged in the overhaul of nuclear-powered surface ships or submarines, currently. However, an increasing number of complex warships will be overhauled in the private sector over the next several years because of the increasing complex ship workload in the public shipyards. In 1981, seven warships with complex weapon systems were overhauled in the private sector; by 1984, this number will increase to 23.

Chart 1

MAJOR ACTIVE FLEET CONCENTRATIONS BY GEOGRAPHICAL AREA


SEATTLE (13)
SAN FRANCISCO (22)
LONG BEACH (13)
SAN DIEGO (101)
NEWPORT (6)
NEW LONDON (25)
NORFOLK (112)
CHARLESTON (61)
MAYPORT (22)

- PEARL HARBOR (43)
- YOKOSUKA, JAPAN (9)

( ) INDICATES LOCATION AND NUMBER OF SHIPS
IN MAJOR HOMEPORT AREAS
(OCT. 1981)

Work on nuclear propulsion plants requires a much larger investment in facilities, security controls, technical expertise, training, and quality control than that required for fossil-fueled ships. This investment must be utilized to the fullest to be cost-effective, a demanding task in either the public or private sector. Consequently, I foresee no change in the number of shipyards, either public or private, engaged in nuclear ship work. Our projections indicate that nuclear-capable shipyards will be more heavily involved in nuclear ship work. This will be a key factor, along with the increased workload, in causing the shift of more non-nuclear, complex ship overhauls to the private sector. Private industry must therefore strengthen its capability to overhaul the complex weapon and electronics systems found on these warships.

Chart 6 reveals both the number of ship overhauls that were started in fiscal years 1980 and 1981, and those scheduled to start in 1982 through 1985. The data given here demonstrate that the number of ship overhauls, including nuclear submarines and surface ships, is increasing over the total 5-year period shown. Future workload projections for these ship overhauls reveal a growing workload for both the public and private sectors.

III. Performance Evaluation

An assessment of ship overhaul performance is measured by schedule adherence, cost, and quality. These performance indicators are routinely tracked.

Schedule Adherence

In the public sector, surface ship overhaul completions averaged 30 days late in fiscal years 1980 and 1981. Submarine overhaul completions averaged 43 days late in 1980 and 82 days late in 1981. This 1981 increase was the result of a workload overload condition that existed in the public sector at that time. In the private sector, surface ship overhaul completions averaged 52 days late in fiscal year 1980 and 30 days late in fiscal year 1981. Submarine overhaul completions averaged 351 days late in 1980 and 382 days late in 1981.

The poor private sector submarine schedule adherence reflects a work overload experienced by Newport News Shipbuilding and Drydock Company in fiscal years 1980 and 1981, leading to excessive delays in finishing the two submarines scheduled for completion. The Naval Sea Systems Command, in conjunction with Newport News, instituted a Fleet Ballistic Missile Submarine Improvement Program in January 1981 to improve schedule adherence.

Control of Overhaul Costs

For surface ships, work package growth in the public sector ran 12 percent over original Navy estimates in fiscal year 1980 and 11 percent in fiscal year 1981. In the private sector, surface ship work package growth was 26 percent in fiscal year 1980 and 12 percent in fiscal year 1981. For submarines, work package growth in the public sector ran 5 percent over original Navy estimates in fiscal year 1980 and 15 percent in fiscal year 1981. In the private sector, submarine work package growth was 21 percent in fiscal year 1980 and 25 percent in fiscal year 1981.

An additional cost index maintained for the private sector is the growth in the final work package cost over the original contract award price. Chart 12 presents this index as a percentage increase of the final contract cost beyond the original contract award.

Quality Performance Parameters

A high quality overhaul is one that restores the ship to a material condition that enables it to perform reliably during the subsequent operating cycle.

A warship, with its many interrelated subsystems, constitutes the Nation's most complex weapon system. Large variations in the scope of authorized repairs and modernization on individual ship overhauls preclude measuring

Chart 6

SCHEDULED OVERHAUL STARTS

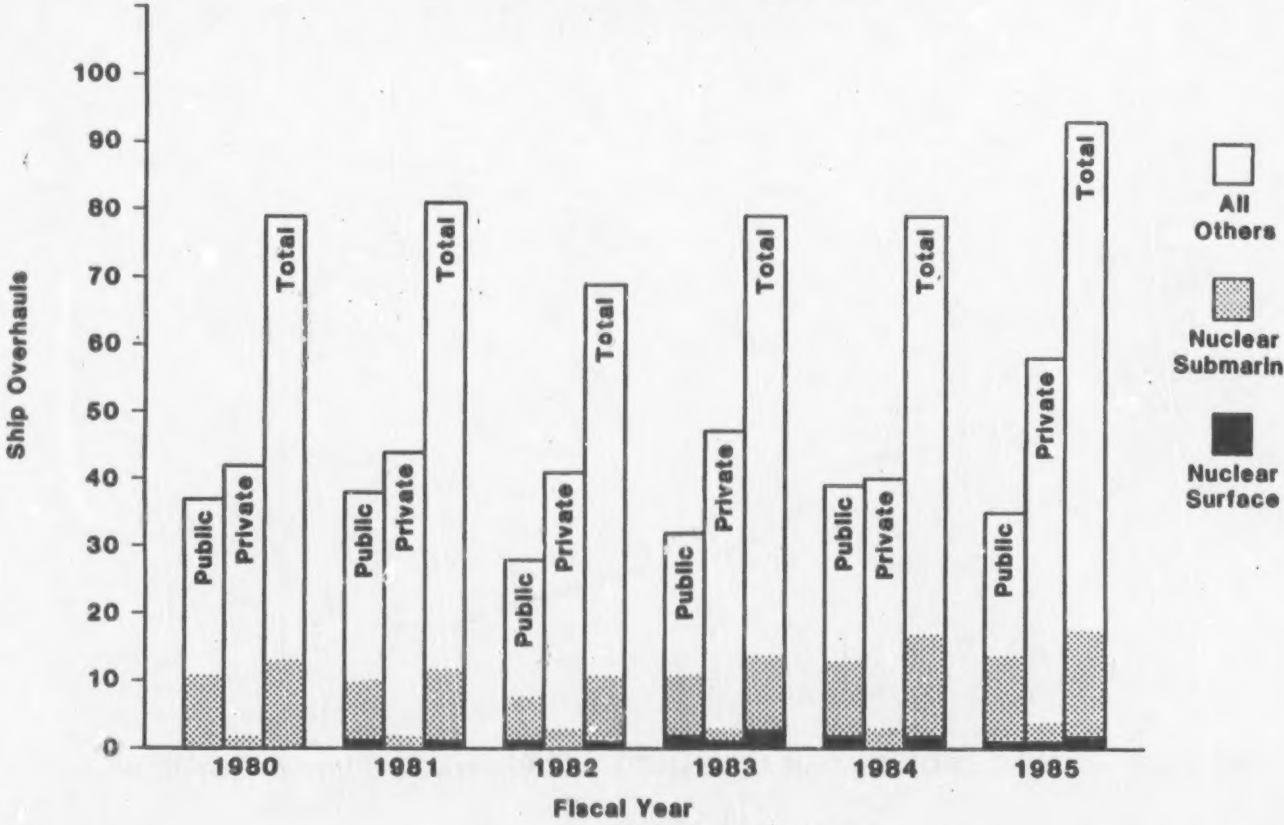
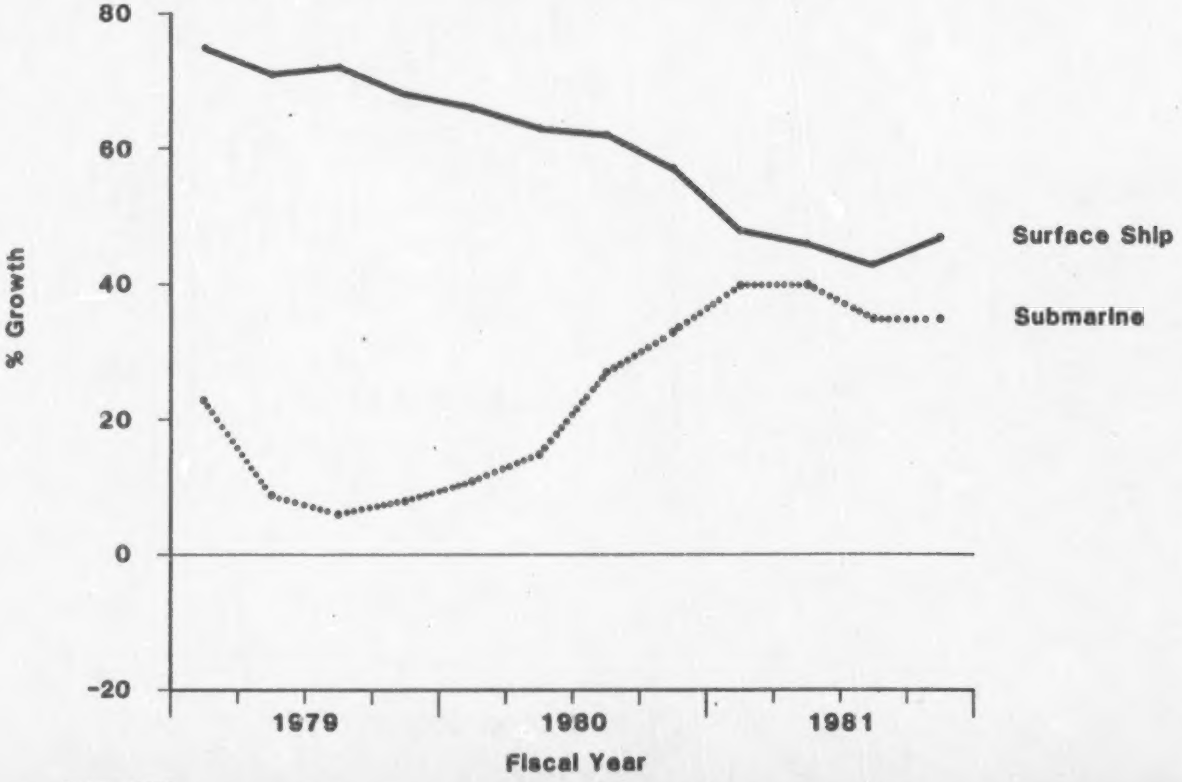


Chart 12

INCREASE IN FINAL COST BEYOND CONTRACT AWARD COST (PRIVATE SECTOR)



quality with simple indices. My judgment on the overall quality of a ship overhaul, in the context of the total amount of work accomplished within the cost and schedule constraints, is that the quality is as good or better than other heavy industries in our country today. On our major combatant ships such as submarines, the quality of our repair work is excellent. Nevertheless, I believe we must do better on some ships. We are placing increased emphasis on improving the quality evaluation of work processes and the testing of our work; initiating new quality training programs; and applying new technology to improve our industrial work process and plant equipment and facilities. Such improvements will result in a reduction of overhaul costs and duration. My goal is to put our public shipyards in a position of national leadership in both productivity and quality industrial work.

Performance Evaluation Summary

Looking at our ship overhaul performance in the aggregate, we have made progress, particularly in private sector surface ship overhauls where we initially placed our emphasis. While we are pleased with our progress, the goals set for overhaul performance have not yet been met. For 1982 and 1983, the following ship overhaul performance goals have been established:

• Minimum interval between contract award and overhaul start in a private shipyard:	90 days
• Schedule adherence based on pre-overhaul scheduled completion date:	0 days late
• Cost growth based on pre-overhaul cost estimate:	0 percent
• Growth of final contract cost over original contract award:	10 percent

I will now briefly summarize our ship overhaul management improvement initiatives.

IV. Ship Maintenance and Modernization Performance Improvement Initiatives

In January 1981, increased emphasis was placed on improving overhaul performance by establishing the Depot Operations Improvement Program (DOIP), which I direct personally. DOIP improvement actions encompass both public and private shipyards and direct command level attention to solving identified problems in a coordinated and focused manner. The DOIP Board of Directors consists of Flag Officers who are directly concerned with improving overhaul performance. This board, which meets every 2 weeks, establishes depot overhaul performance measures, sets priorities, coordinates and manages all improvement efforts, reallocates and assigns resources, reviews program performance, and directs the institutionalization of improved operations.

The following is a summary of major improvement initiatives, organized by program element. These initiatives are already beginning to reap benefits in terms of performance improvement.

Contracting

- The Navy has made a significant change in surface ship contracting techniques during the past several years. Traditionally, the Navy utilized an Invitation For Bid (IFB) and awarded fixed price overhaul contracts on the basis of the lowest price. In the past 2 years, the Navy has increased its use of formal source selection procedures on complex, large dollar value overhauls (i.e., Requests for Proposal (RFPs)), in which prospective contractors submit technical proposals as well as price proposals. Both factors are considered in selecting the overhaul contractor. This change is a result of GAO recommendations and reflects the fact that more complex ships are entering the private sector for overhaul.

  Under the RFP process, the Navy is also making much greater use of multiship and cost-type contracts. For example, NAVSEA recently awarded a contract for the overhaul of four Spruance Class destroyers. The contract type being utilized in most of the multi-ship contracts is a Cost Plus Award Fee (CPAF) contract, in which the contractor is ensured a

3-percent profit. However, the contractor is given an incentive to earn an additional 1- to 10-percent profit by his performance in three specific areas: cost, schedule, and technical compliance. While no overhauls have been completed as yet under a CPAF contract, early indications from the first two contracts are encouraging.

Another new contracting approach initiated recently has been the two-phase negotiation process. Like the formal source selection process, contractors submit technical proposals for Navy review. Once a determination is made as to which proposals are technically acceptable, the Navy awards a fixed price contract to the contractor submitting the lowest price offer.

Concomitant with the increased use of RFPs, the NAVSEA Surface Ship Overhaul Acquisition Branch was created in November 1980 to provide consistency and equity in the RFP process. To date, this branch has awarded eleven contracts for the overhaul of 16 ships, with an average interval of 155 days between contract award and overhaul start.

- In July 1981, we implemented a solicitation area policy to support the CNO's objective of performing ship overhauls in or near a ship's home port. The long-term effect is expected to be an increase in private sector industrial capacity near major home port areas. In fact, the industry is already increasing its capability in areas of heavy fleet concentration such as San Diego, California; Norfolk, Virginia; and Jacksonville, Florida.

- In April 1981, we conducted our first annual Private Sector Overhaul Planning Conference to develop a comprehensive corporate plan for future private sector overhauls. This plan has been given to private industry to help them in their long-term planning. This increased planning effort by the Navy and private contractors should lead to improved private sector overhaul performance.

- To further enhance the relationship between the Navy and the private shipbuilding and ship repair industry, my staff and I meet regularly with segments of the industry. Such meetings and other discussions with industry leaders have focused on topics such as contract administration, quality assurance, and ship work specifications. It is my view that the Navy's relationship with private industry has improved greatly during the last 12 months.

Work Package Development

- Defining the work to be performed during an overhaul requires a trade-off between (1) an inexact long-range assessment of work requirements based on historical experience in order to permit timely pre-planning and material ordering, and (2) a precise assessment immediately before the beginning of the scheduled overhaul. The second option obviously sacrifices extensive pre-planning and adequate advance material ordering. To achieve a better balance between these two options, we are pursuing four initiatives: (1) the consolidation, standardization, and strengthening of the responsibilities of the work package formulation process; (2) the development of an enhanced engineered approach to forecasting and defining work requirements; (3) improvements in technical specifications; and (4) improvement in the availability of critical repair material from the Navy Supply System.

- Since the introduction of port engineers into the Navy and the development of the Combat Store Ship (AFS) Phased-Maintenance Program (AFSPMP) in July 1980, the port engineers' authority and responsibility have gradually expanded. They are currently, the key individuals, responsible for the direction of all Atlantic Fleet (LANTFLT) AFS availability planning, including the chairing of work definition conferences. Analyses conducted to date show that the Navy's port engineer concept of maintenance management offers promise in reducing ship maintenance costs for selected types of Navy ships. Although this concept is not an exact replica of the commercial concept (Navy port engineers do not have contracting authority like their commercial counterparts), it is proving workable.

Moreover, expansion of the phased-maintenance concept, which includes the use of port engineers, is planned for Pacific Fleet (PACFLT) AFSs (homeported in CONUS), all replenishment oilers, LANTFLT landing ship docks, and LANTFLT amphibious transport docks.

- Although the AFS Phased-Maintenance Program is relatively new, there is enough data to support certain preliminary conclusions as to the program's success. Assessment of Atlantic Fleet AFS performance since these ships entered the Phased Maintenance Program reveals the following:

  -- Schedule Adherence. The first two private sector phased-maintenance availabilities (for the USS SAN DIEGO (AFS-6) and the USS CONCORD (AFS-5)) were completed 1 week and 1 day early, respectively. The private shipyard has demonstrated the capability to support the program and a corporate commitment to its success. Based on deployment information gathered thus far and out-year projections, the prospects for achieving enhanced stability and consistency in the operation and maintenance schedule are favorable, and a slight improvement in ship availability is indicated.

  -- Maintenance Costs. For fiscal years 1980 and 1981, actual depot level maintenance man-day expenditures, when compared with the projected maintenance costs that would have been incurred without the program, reveal a savings of 18,185 man-days. Also, the projections for fiscal years 1982 through 1985 show a potential savings of 44,919 man-days, if the AFSs continue under phased maintenance. Intermediate level man-day expenditures under phased maintenance are essentially the same as before phased maintenance.

  -- Material Condition. No degradation has occurred in the material condition of the Atlantic Fleet AFSs, while the fleet derived the benefits discussed above.

Industrial Plant

- The Congress has responded favorably to the Navy's requests for shipyard modernization funding. However, these requests have been constrained because of the Navy's overall priorities and existing budgetary limitations. The need to allocate these limited resources to the best advantage of the Navy as a whole precludes modernization of the public shipyards at the pace that is most desirable. Nevertheless, increased funds will be allocated for shipyard modernization as funding permits.

  The acquisition of new industrial plant equipment may be accelerated by the OSD's decision to acquire this equipment (beginning in fiscal year 1983) through the Naval Industrial Fund rather than by appropriated funds, as in the past. The budget targets for industrial plant equipment acquisition in fiscal year 1984 and the following years are approximately 5 percent of estimated gross annual shipyard revenues, although the fiscal year 1983 budget will fall substantially below this target for the reasons mentioned above. The 5-percent annual equipment investment figure is a generally recognized and accepted criterion in private industry. This level of investment will ensure plant modernization and enable the Navy to benefit from new manufacturing technologies and processes.

V. Future Naval Ship Maintenance and Modernization Industry Issues

As we progress toward a 600-ship Navy, we must develop a strategy and detailed plan that will support both the current and future ship maintenance and modernization needs. Our fleet maintenance and modernization strategy is composed of the following elements.

General Strategies

- All ship repairs and alterations will continue to be performed by three maintenance support levels:

  -- Organizational (Ship's Force).

-- Intermediate (tenders and Intermediate Maintenance Activities such as Shore Intermediate Maintenance Activities and Naval Sea Centers).

-- Depot (public shipyards and private shipyards under the Supervisors of Shipbuilding and Repair (SUPSHIPs)).

Depot level maintenance is maintenance requiring a greater industrial capability than that possessed by either organization or intermediate level activities. It is normally accomplished during regular overhauls, Selected Restricted Availabilities, Restricted Availabilities, or Technical Availabilities. Depot level work is authorized only when organization or intermediate level maintenance activities do not have sufficient time or manpower; the work is beyond the capabilities of fleet maintenance activities; or when it would result in split responsibilities between fleet and depot maintenance activities.

- The assignment of a ship to a public or private shipyard is based upon fleet-wide material readiness and operational requirements, technical quality considerations, and workload capacity considerations.
- Maximum effort will be made to perform overhauls in or near the ship's home port.
- Only qualified shipyards will be considered for overhaul assignments.
- Nuclear-powered ship overhauls will be assigned only to nuclear-qualified shipyards.
- Solicitations for the private sector will be governed by the Defense Acquisition Regulations and other applicable procurement regulations.

Public Shipyard Strategies

- Public shipyards are the nation's principal asset for the depot level overhaul of our highest priority capital ships and nuclear-powered ships. They embody the principal industrial capability for repair of battle damage during war and major voyage repairs during peacetime. Paramount consideration will be given to maintaining this capability to meet the current requirements for material readiness and future battle damage repair.
- Overhaul of nuclear-powered ships, aircraft carriers, and complex surface combatants will receive first priority for accomplishment in public shipyards.
- In accordance with the CNO's strategic and operational requirements, the eight public shipyards are strategically located (four on the Atlantic Coast and four on the Pacific). These shipyards are to meet the following requirements:

  -- Two shipyards on each coast must be capable of repairing aircraft carriers.

  -- One shipyard on each coast must be capable of repairing surface nuclear ships.

  -- Three shipyards on each coast must be capable of overhauling nuclear submarines.

  -- Three shipyards on each coast must be capable of installing, maintaining, and checking sophisticated electronics and missile weapon systems.

  -- All shipyards must serve major home port and operating areas.

- The eight public shipyards are expected to serve the needs of the fleet for the foreseeable future. The fiscal year 1983 program is executable within the current personnel limitations established for the public shipyards. It is necessary to increase public shipyard personnel by approximately 2 percent from 76,335 to 78,125 to accommodate the fiscal year 1984 program.

- We will pursue a vigorous program to upgrade and modernize public shipyard plant equipment and facilities.
- The Navy is not currently planning to undertake new ship construction (either submarine or surface ships) in the public shipyards. However, we do not rule out this option in the future.

Private Shipyard and SUPSHIP Strategies

- The Navy will continue to accomplish a minimum of 30 percent of ship maintenance and modernization work in the private sector.
- The fiscal year 1983 program is executable by the currently assigned numbers of SUPSHIP personnel. To support the larger private sector workload for fiscal year 1984, SUPSHIP employment must increase 10 percent, from 4,411 to 4,823 personnel (along with the requisite funding), to properly contract for and manage the private sector repair and new construction workload.
- Ship overhaul contracts to private shipyards will consist primarily of work on surface combatant ships that cannot be accommodated by public shipyards and work on amphibious warfare, support ships, and service craft.
- Ships assigned to the private sector for overhaul will be overhauled in their home ports to the extent that sufficient competitive industrial capability and capacity allow.
- Multi-ship procurements will be used, when appropriate, in order to: provide incentives for shipyard improvements and capital investments; take advantage of a learning curve; gain economies in material ordering; and achieve other benefits inherent in this process. Small business set-asides will be used in accordance wth Defense Acquisition Regulations. Contract awards under formal source selection criteria will emphasize technical and managerial capability in conjunction with past performance. Private sector overhaul planning will encourage development of the more capable and better performing segments of industry that can meet the Navy's requirements.
- The Navy is committed to strengthening old and opening new lines of communication with the private sector to improve our relationship and the overhauling of our ships. Navy workload planning documents will be provided annually to private industry to guide them in developing their business plans. Better cooperation between the Navy and private industry in ship overhaul planning and execution will both improve fleet readiness and help strengthen the ship repair industry.

VI. Summary Message

I have endeavored today to provide you with an accurate assessment of our progress over the past year in improving ship overhaul performance. I believe we have made substantial improvements, particularly with surface ship overhauls in the private sector. We are moving in the right direction. The improvements we have achieved thus far have strengthened our resolve to achieve our stated performance goals.

The Congress can be instrumental in our efforts to improve our overhaul performance (and consequent military readiness) by continuing to provide strong support of:

- Our public shipyard modernization plan.
- Our requirement for sufficient numbers of public shipyard and SUPSHIP employees to properly maintain our nuclear fleet and combatant ships.

- Our efforts to provide incentives to the private sector to develop and maintain the skills and facilities required to effectively handle the increasing number of complex ships being assigned to the private shipyards.

Mr. Chairman, this concludes my prepared statement. I will be happy to respond to your questions at this time.

BIOGRAPHICAL SKETCH

VICE ADMIRAL EARL B. FOWLER, JR., USN

Earl B. Fowler, Jr., was born in Jacksonville, Florida, on September 29, 1925, son of Earl B. and Veva Carpenter Fowler. He enlisted in the Navy V12 program and entered Georgia School of Technology in July 1943. In February 1946, he graduated with a B.S. degree in mechanical engineering and was commissioned Ensign, U.S. Naval Reserve.

His first duty was aboard the USS COLUMBIA (CL-56). Thereafter he served on the USS RANGER (CV-4) and the USS WRIGHT (CVL-49).

After graduation from Massachusetts Institute of Technology in January 1949 with a B.S. degree in electrical engineering, he was assigned to USS LEARY (DDR-879). He then served at the Naval Shipyard, Charleston, South Carolina, and on COMINELANT staff.

Vice Admiral Fowler served at the Navy Radiological Defense Laboratory, San Francisco, and Hunter's Point Naval Shipyard. After 2 years as Material and Engineering Advisor in the Military Assistance Advisory Group, Republic of China, he served on COMSERVPAC Staff at Pearl Harbor, Hawaii.

In September 1965, he was ordered to the Pacific Missile Range, Pt. Mugu, California, as Head, Ship Engineering Division, working on the design of ships for the Apollo Program and National Range Support.

Vice Admiral Fowler came to the Naval Material Command in July 1967 as Project Manager, Instrumentation Ships Project Office, PM-5. He then became Project Manager, Oceanographic, Mine Patrol and Special Purpose Ship Acquisition Project. He attended the Harvard University Advanced Management Program during the fall of 1971.

In January 1972, he reported to the Naval Electronic Systems Command as Deputy Commander for Material Acquisition. Promoted to Rear Admiral on August 1, 1974, he served as Vice Commander until June 30, 1975, and as Commander from August 31, 1976, to March 21, 1980. He was promoted to Vice Admiral and became Commander, Naval Sea Systems Command, on March 31, 1980.

He was awarded the Legion of Merit for meritorious services performed at the Naval Electronic Systems Command. In addition, he has the Meritorious Service Medal, the American Theater Medal, World War II Victory Medal, Occupation Medal (Europe), and the National Defense Medal with star.

Vice Admiral Fowler is a member of Delta Tau Delta, Georgia Tech; Pi Tau Sigma Honorary Mechanical Engineering Fraternity; Institute of Electrical/Electronic Engineers; the American Society of Naval Engineers; and the Society of Naval Architects and Marine Engineers.

Vice Admiral Fowler and Mrs. Fowler, the former Helen Marie Jorgensen of Sioux City, Iowa, reside in Alexandria, Virginia. They have two children, Mary Helen and Joan Ann.

NAVAL OPERATIONS (SURFACE WARFARE)

STATEMENT OF VICE ADM. R. L. WALTERS

Admiral **FOWLER**. Now, Mr. Chairman, if I may, I would like to go back to your question.

Senator **STEVENS**. I wonder if Admiral Walters can complete his statement first.

Admiral **WALTERS**. Mr. Chairman, I have just a couple of points to make. Mr. Sawyer has essentially covered the thrust of our shipbuilding program.

SEA-BASED AIR POWER

One of the things that I would like to point out is that the shipbuilding program we have submitted this year, with the two carriers, emphasizes the importance the Navy puts on sea-based airpower. It is a lesson that has to be understood in the context of the current situation in the South Atlantic.

That has been a very fundamental part of the Navy strategy, to insist upon sea-based air as being part of the Navy, and it is why we have consistently formed our forces around what we call carrier battle groups and why we have continued to argue that we need capability and strength in these battle group capable ships.

This is a watershed year for the Navy. We have a program before you that will lead us toward the force level objectives that we seek and which this administration supports. It is ambitious but it is also the most practical way that we can explain to you the kind of naval forces that we need if we are serious about maintaining a maritime strength sufficient to support the needs of this Nation.

That concludes my oral statement, sir.

Senator **STEVENS**. Thank you very much.

[The prepared statement of Vice Adm. Robert L. Walters follows:]

PREPARED STATEMENT OF VICE ADM. ROBERT L. WALTERS, USN

DEPUTY CHIEF OF NAVAL OPERATIONS FOR SURFACE WARFARE

Mr. Chairman and members of the Committee, I am Vice Admiral Robert L. Walters, USN, the Deputy Chief of Naval Operations for Surface Warfare and the Shipbuilding and Conversion, Navy (SCN) Appropriation Sponsor.

I am privileged today to have the opportunity to present to you the Navy's Shipbuilding and Conversion budget request for fiscal year 1983 and to explain our requirements for this year as well as the remainder of the FY 1983-1987 five year shipbuilding plan.

This is a watershed year for the Navy, because the results of your deliberations regarding this request will set the Navy's course for years to come. The plan for 1983 which I present to you today has been carefully considered by the Department of the Navy, the Department of Defense and other elements of the Administration. It is by far the largest peacetime shipbuilding request in the history of our Nation and it will be necessary to continue sizeable shipbuilding programs during the next five years if we are serious about building a Navy sufficient to ensure continued freedom of the seas. We recognize that our shipbuilding needs will involve significant annual investment and a prolonged commitment.

There is general concurrence in the need for increased naval force levels, but there are questions regarding the degree and rate of increase and the affordability of the increase. There is also some debate on the type of ships which should be built and the capabilities which they should possess. In fact, the technological requirements to combat the known and projected threats are the primary drivers of this building program. We are forced to straddle an uncomfortable fence with large numbers of ships on one side and adequate but expensive capabilities on the other. To build ships which are unable to fight and win would lead to false security and even worse - the potential loss of the freedom of the seas which is absolutely vital to our national survival and the continuing peace and order of the world.

The Congress of the United States recognized these requirements in approving a Sense of the Congress resolution which states that "a larger and stronger American Navy is needed as an essential ingredient of our armed forces, in order to fulfill its basic mission." The resolution reaffirmed the goal of a six hundred ship Navy by the end of the century, at the latest. The missions enumerated in that resolution constitute the raison d'etre of the U.S. Navy. In order to successfully accomplish those missions, our Navy must possess certain characteristics. Foremost of these characteristics are flexibility, offensive power and endurance.

Let's look at flexibility first. Our strategic and economic interests are global, but the maritime threat we face is also worldwide. Thus we must have a Navy capable both of reaching out over a vast area and supporting a variety of national interests against potential threats. To concentrate on any one area such as the Indian Ocean, or on one mission such as convoy escort to the exclusion of other areas and missions, would allow potential adversaries too much freedom of action, and would be a serious error.

The second required characteristic is offensive power. Unlike land warfare, occupation of space at sea provides only transient benefits. The vast size of the area involved and the inherent mobility of maritime forces allows static positions to be bypassed or avoided. Thus we are faced with two choices. We must either build enough ships to physically occupy all important maritime areas at once -- a fiscal and physical impossibility -- or we must build ships able to destroy enemy forces which may challenge our control of vital sea areas. I can think of no way of improving upon John Paul Jones' dictum that our ships must be able to "go in harm's way" if we are to defeat an enemy at sea.

The third required characteristic is endurance. This is achieved by a capability to replenish the fuel, ammunition and stores required by our combat ships without reliance on shore bases which are subject to enemy action. To achieve and maintain this capability the five year plan includes oilers, ammunition ships and repair ships which are required to replace ships at or near the end of their effective service lives.

A major new thrust of the Navy's program is to improve the distribution of offensive power by providing more ships with offensive punch, to give increased emphasis to sealift and to replace overage mobile logistic support forces. It is vital that we improve our ability to engage and destroy enemy forces from a multitude of platforms in any ocean area, and mandatory that our shipbuilding and modernization programs are structured accordingly.

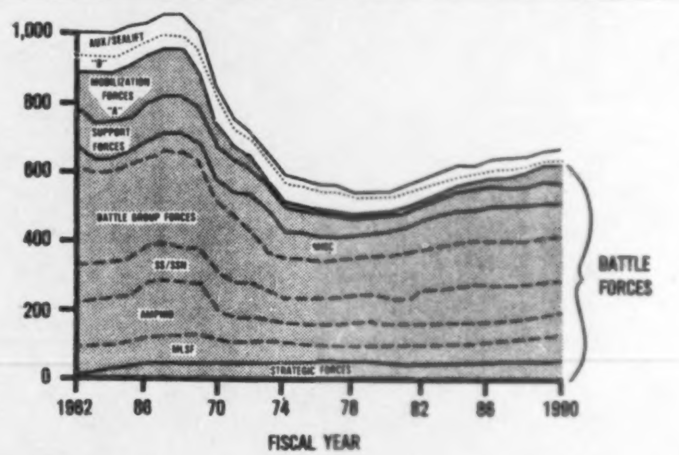
All of this boils down to the fact that we need a balanced force posture -- a force posture capable of winning against a formidable opponent who will probably choose the time and place for the initiation of combat. The challenges of war at sea will be extremely demanding, and we must continue to preserve the proper mix of ship and submarine numbers and capabilities to insure we maintain the requisite sea and air power to win. The hard facts are that we don't have enough battle force capable ships to cover adequately either peacetime or wartime requirements. Hard fiscal choices between numbers and quality continue to make decisions difficult, but we will propose no ships in our SCN program which we feel are deficient in combat capability.

FORCE PLANNING

We prefer to define the "600-ship Navy" as those forces required to achieve 15 Battle Groups; 100 attack submarines; amphibious lift for a MAF and a MAB; and the necessary support and logistic forces to sustain the fleet which would result.

This first viewgraph depects the overall size of the Navy for the past twenty years.

U.S. NAVY SHIP FORCE LEVELS



You note the slight build up during the Vietnam era and the precipitous drop in ships which occurred thereafter. This decline has continued up to the recent past but is now demonstrating an upward trend. The increasing force level depicted as commencing in the early 1980s is a reflection of the current five year plan which as shown, projects achievement of the 600 ship battle force goal by 1989.

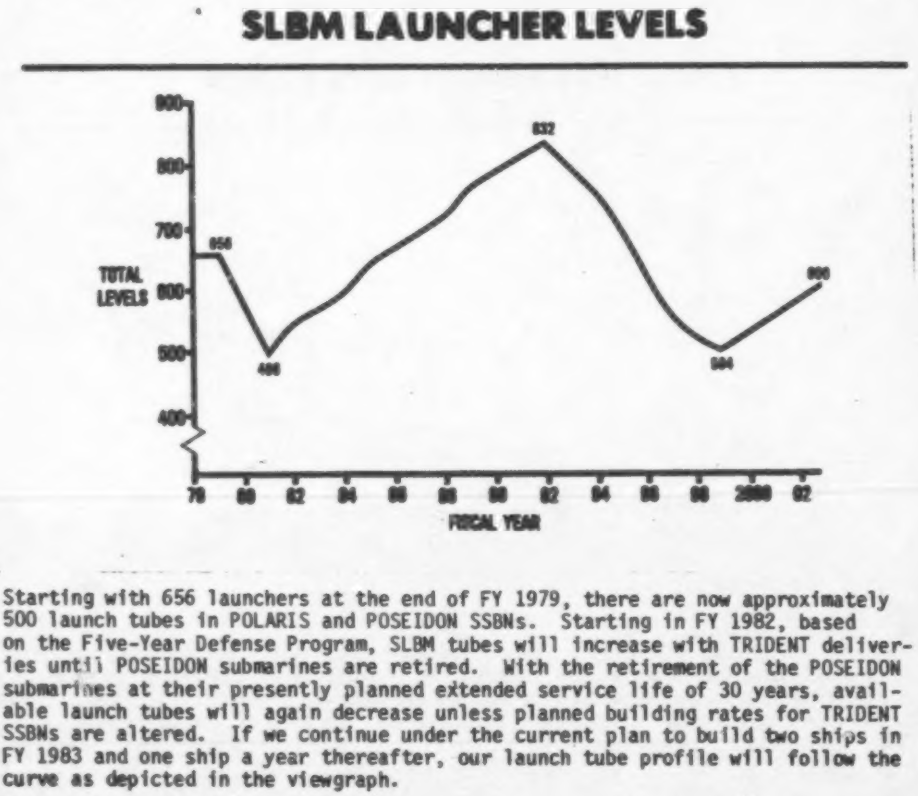
In outlining our minimum ship requirements, I will deal with a number of separate categories: strategic and attack submarine forces, carrier forces, surface combatant forces (cruisers, destroyers, frigates), amphibious forces, mobile logistic support forces (MLSF), and mine warfare forces.

STRATEGIC SUBMARINE FORCES

Dealing first with strategic submarines (SSBN), the Navy embarked on the TRIDENT shipbuilding program, with authorization for the lead ship in 1974, designed to replace the aging 41-ship POLARIS/POSEIDON force. Two of the oldest POLARIS submarines have been inactivated. The remaining eight have been removed from the strategic nuclear force and are being converted to SSNs.

The USS OHIO, the first TRIDENT submarine was delivered by Electric Boat Company and commissioned last year. To date, the ship has exceeded all design requirements and is in the process of completing a highly successful series of trials. We plan for Ohio to commence her first deterrent patrol later this year. Even though we are proceeding toward a smaller number of SSBNs, force capability will increase significantly as a result of a much more capable TRIDENT submarine, equipped with 24 missile tubes vice 16, and which carries the more capable TRIDENT I missile. Force capability is also being increased by backfit of TRIDENT I missiles on 12 POSEIDON submarines and upgrading warheads on some POSEIDON missiles. The ultimate TRIDENT force level remains under continuing review and will be influenced by several interrelated factors. Primary among these is the requirement to replace our present SSBN force as a result of age and technological obsolescence, possible changes in the role SLBMs will play in the future United States mix of strategic forces and the political considerations related to national strategy and strategic arms limitation agreements with the Soviet Union.

SSBN force levels are best displayed in terms of missile launchers as shown in this viewgraph.



Starting with 656 launchers at the end of FY 1979, there are now approximately 500 launch tubes in POLARIS and POSEIDON SSBNs. Starting in FY 1982, based on the Five-Year Defense Program, SLBM tubes will increase with TRIDENT deliveries until POSEIDON submarines are retired. With the retirement of the POSEIDON submarines at their presently planned extended service life of 30 years, available launch tubes will again decrease unless planned building rates for TRIDENT SSBNs are altered. If we continue under the current plan to build two ships in FY 1983 and one ship a year thereafter, our launch tube profile will follow the curve as depicted in the viewgraph.

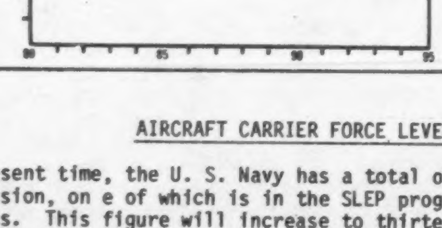
Numbers of launch tubes are not the only factor of significance. SLBM force capability is also largely influenced by the type of missile carried. Thus, as we proceed with the development of the TRIDENT II (D-5) missile, we will realize a vast improvement in capability with no increase in launch tubes.

ATTACK SUBMARINE FORCES

The ability of our multi-mission, nuclear powered, attack submarines to operate covertly and with high survivability makes them extremely valuable for forward area operations, particularly in waters which would be untenable for other forces. Given the SSN's staying power, quietness, superior sensors, mobility and significant kill potential, these submarines also are a primary ASW weapons system in open ocean warfare. Whether operating in the relatively new role of direct support for the carrier battle groups or in more traditional, independent operations in forward areas or in choke point barriers, the SSNs have unique capabilities. An evolving mission for our SSNs is strike warfare using the land attack version of the TOMAHAWK cruise missile.

Because of the increasing capabilities and size of the Soviet Naval threat, it is essential that we maintain an adequate SSN force level. Since 1973, the minimum force level goal has been 90 SSNs. The JCS have consistently identified greater requirements; however, within former force level and fiscal constraints 90 was consistent with our balanced force requirements. This minimum force of 90 SSNs has been critically re-evaluated relative to Soviet submarine developments, new SSN missions, and the need to increase Navy force levels to maintain Freedom of the Seas. Consistent with a growth to 15 battle groups, at least 100 nuclear attack submarines is our increased objective. These additional SSNs will improve our capability to counter an increasingly formidable Soviet submarine fleet. These increased numbers also will be needed to satisfy an increased demand for SSN strike warfare tasking. It must be recognized that the 100 SSN force level is still an austere level, and current building rates will not sustain this objective. Regardless of force size, it is imperative that we maintain qualitative superiority in this important program. The viewgraph, which projects the five year shipbuilding plan, shows that we approach the required total in 1984 and gradually fall away until the early 1990s when we begin to reap the dividends of a sustained four SSNs per year building program.

NUCLEAR ATTACK SUBMARINE (SSN)
FORCE LEVELS



AIRCRAFT CARRIER FORCE LEVELS

At the present time, the U. S. Navy has a total of thirteen aircraft carriers in commission, on e of which is in the SLEP program, for a total of twelve deployable units. This figure will increase to thirteen when the VINSON (CVN-70) is commissioned later this year and is projected to increase to fourteen when CVN-71 becomes deployable in 1987, dropping to thirteen between 1990 and the end of the century. These projections are predicated on extending the service life of the eight conventional large deck carriers and CVN-64 through the SLEP program and operating CORAL SEA and MIDWAY until the end of this decade. The projection indicates that the CVN-72 and CVN-73, which are requested in the current budget, will deliver in FY 1989 and FY 1991 respectively Navy will continue to require the construction of carriers beyond CVN-72 and 73 for the remainder of this century, first to provide the fourteenth and fifteenth deployable large-deck carrier by the mid-1990's, and later to provide replacements for the conventional large deck carriers as they begin to reach their end of 45-year service life beginning in the late 1990s.

While no funds have been requested in this budget for the reactivation of any 27C class carrier, such reactivations remain the most expedient method to achieve the desired Carrier Force Levels.

SURFACE COMBATANT FORCES

Due to the multiple types of warfare capabilities required within a broad mix of surface combatants, sizing of each ship class to produce the minimum required forces is a difficult process.

Battleships augment the offensive power of the carrier battle groups. Teamed together with cruisers and destroyers they are the predominant striking force of surface action groups. They also operate in offensive support of amphibious operations. Cruisers and destroyers operate with the carriers in battle groups, team together as surface action groups, and protect amphibious task forces and underway replenishment groups. They are designed to function in high threat areas and possess requisite weapon systems, command and control facilities, engineering redundancy and endurance to conduct sustained combat operations at sea. Frigates, on the other hand, are designed as open ocean escorts. They are smaller, less capable, and less costly warships, which are intended to operate in lower threat areas. The primary mission of a frigate is anti-submarine warfare, whereas cruisers and most destroyers are multi-purpose ships with capabilities in several warfare areas.

Our force requirements were developed to maintain a margin of ASW superiority, enhance AAW capability and to augment offensive power and strategic flexibility. In so doing, we have placed an emphasis on total force capability, vice numbers of ships, in developing a realistically attainable and capable minimum force level objective.

Considering initially the carrier battle groups, force sizing is based on the projected employment of that group. Most current force level derivations assume two carriers per battle group in the higher threat environment. When two carriers operate as units of a single battle group in close proximity, three AEGIS ships are considered the minimum necessary for AAW defense. When operating as a battle group organized around a single carrier, two AEGIS cruisers are required. In addition to carriers and AEGIS cruisers, we need a mix of other cruisers and guided missile destroyers plus surface ASW forces to fulfill battle group requirements. This results in battle group requirements for surface combatants as shown on the viewgraph on the following page.

The surface action group, or SAG, can operate in conjunction with or independent from carrier battle groups. In lower threat areas, a surface action group can on occasion ease the heavy commitments of the CVBGs. SAGs have been utilized in the Middle East, Caribbean and Indian Ocean regions whenever this level of force is deemed the appropriate level of response. SAG utilization in the future will be enhanced by the addition of cruise missiles, which will permit real distribution of offensive power, and AEGIS which will provide increased AAW capability when the full range of airpower is not available. The reactivation of the battleships adds a new dimension of visible combat power, survivability, and flexibility to these groups.

Sizing of amphibious forces is a function of the Marine Amphibious Force Planning Goal. A revised goal of lift sufficient for an independent MAB in one ocean and a MAF in another has been established. The minimum number of surface combatants needed to support these forces is 14 cruisers and destroyers and eight frigates.

SURFACE COMBATANT FORCE LEVEL
NAVY OBJECTIVE (238)

	CGN	CG47	DDG51	DDG-993	DD-963	FF/FFG
1-1 CV BATTLE GROUP						
7-2 CV BATTLE GROUPS						
2/3 CG-47		23				
2/5 DDG51/CGN	6		31			
2/4 DD-963					30	
4 BB SAGS						
1 CG-47		4				
3 DDG51			12			
AMPHIBIOUS FORCE						
10 DDG51			10			
4 DDG-993				4		
8 FFG/FF						8
CONVOYS						
1 DD-963					7	
9 FFG/FF						63
URGS						
1 DDG 51			10			
3 FFG/FF						30
TOTAL	6	27	63	4	37	101
					137	101

Force levels required to protect military shipping are extremely sensitive to the proximity of enemy force concentration, to the number of convoys to be protected and to the contribution of allies. Allies could be expected to provide escorts for some convoys thereby reducing U.S. requirements. Based on the expected scope of convoy requirements and a reasonable assumption of allied contribution, we have assumed the U.S. Navy must be able to provide about 70 surface combatants for military convoy escort requirements.

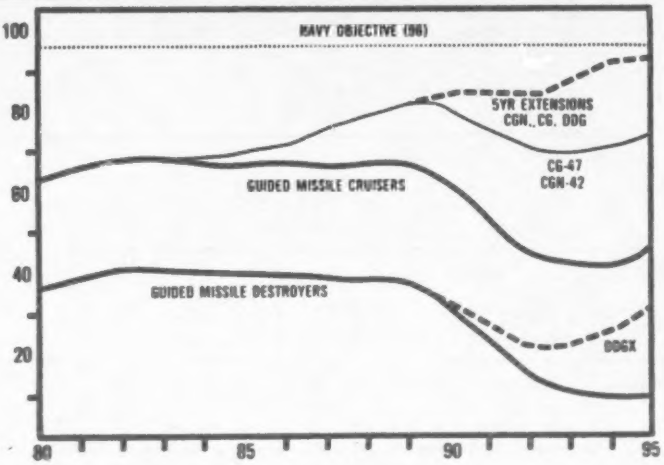
Mobile logistics are absolutely vital to the Navy's ability to conduct prompt and sustained combat operations. Underway replenishment ship operations span the spectrum of threat exposure level and require a significant measure of protection. Three to five surface combatants are required in support of each underway replenishment group. Estimates of the number of underway replenishment groups vary depending on battle group employment and forward base availability assumptions. Minimum force objective for ships in support of this task is expected to be about 40 surface combatants.

The total surface combatant force level goal based on this "Top Down" assessment is 238 ships as summarized in the viewgraph. The 238 ship surface combatant force outlined herein is considered the minimum acceptable force of the correct mix.

Within the surface combatant mix of cruisers, guided missile destroyers, destroyers and frigates, the most serious problem facing the Navy is the replacement of those guided missile ships which are scheduled to retire by the early 1990s. Adding to the urgency for construction of the DDGX is the fact that the missile fire control systems of current fleet ships were designed in the 1950s and 1960s to engage and destroy manned aircraft. Their capability is limited against the sophisticated array of anti-ship missiles which potential adversaries possess in great numbers. Only the AEGIS technology and hardware offers the Navy the future ability to successfuly defend ships against these missiles, which can be launched from aircraft, submarines or other surface ships.

This viewgraph shows the guided missile ships currently in commission and the gradual increase in these assets as CG-47s, CGN-42s and DDGXs are delivered in numbers.

COMPOSITE GUIDED MISSILE CRUISERS AND DESTROYERS



Please note some service life extensions will be required to maintain this real growth past 1990. I cannot overstate the requirement for AEGIS equipped ships and, most particularly, the urgent need to move rapidly into a large construction program for the DDGX class.

LOGISTIC SUPPORT FORCES

As I indicated in the initial section of the statement, endurance is one of the primary characteristics we seek in our Navy to ensure control of the seas. The administration's five year plan includes several classes of support ships which are necessary, if we are to be able to continue to support our battle forces at sea.

Fortunately, Congress appropriated funds in FY 1982 for the lead ship of a new class of Mine Countermeasures ship, the MCM. An acceptable risk force will require a total of fourteen. These ships will be augmented by a low mix minehunter, the MSH, which will be introduced in the FY 1984 budget. Seventeen MSHs are planned for construction. The 31 mine countermeasures ships represent a bare minimum requirement and dictate sequential clearance of U.S. waters and heavy reliance on our allies to keep their own waters swept. We now consider that we are on the right course with the proper mix of ships and helicopters to meet our mine countermeasure requirements with acceptable risk.

FISCAL YEAR 1983 SHIPBUILDING REQUEST

This Administration is firmly committed to ensuring that we maintain the ability to freely use the sea lanes of the world. Previous witnesses before this Committee, including the Secretary of Defense, the Secretary of the Navy, the Chief of Naval Operations and the Commandant of the Marine Corps have been consistent in their statements in support of significant increases in shipbuilding as a necessary ingredient to the historic national objective. A maritime strategy has historically been a national objective and only recently has our ability to execute such a strategy been questioned. Effective sea power means that we must maintain and deploy visible and credible forces on a global scale. It is our firm conviction that any war with the Soviet Union, regardless of perceived limitations to specific land areas, will immediately assume global proportions at sea. Therefore, it is imperative that the Navy be structured to win battles at sea against a formidable enemy. This implies commitment of forces which are both capable of defeating enemy forces in combat and sufficient in numbers to pursue a sequential strategy in several widely separated strategically vital ocean areas. My purpose is to translate these broad requirements into specific shipbuilding terms.

Fiscal Year 1982 was a period of adjustment and there were many revisions to the original program before we finally submitted the FY 1981 supplemental and the amended FY 1982 budget. Regretfully, we were unable to provide an operative five year shipbuilding plan throughout that period. Having now had time to thoroughly examine naval requirements to support revised national goals and objectives, we are able to present a balanced five year SCN plan which fully supports our objectives. It is a balanced plan which includes building of all of the ship types needed for a structured and economic approach to acquiring those forces which will support the National Strategy.

NAVY FIVE YEAR SCN PLAN
FISCAL YEAR 1983-1987
CONGRESSIONAL SUBMISSION

	FISCAL YEAR				
	1983	1984	1985	1986	1987
TRIDENT	2/2405.0	1/1700.0	1/1856.3	1/1060.7	1/2043.5
SSN-688	2/1443.4	2/2013.8	4/2872.7	4/3101.1	4/3258.5
CVN	2/6705.2	-	-	-	594.0
CV (SLEP)	1/688.5	100.0	1/752.3	112.5	1/721.0
CG-47	3/3136.6	3/3340.0	3/3523.0	4/4813.1	4/5175.2
CGN-42	-	-	-	900.7	1/2574.6
BB (R)	1/417.4	1/400.0	1/384.7	-	-
DDGX	-	187.0	1/1370.1	431.0	3/4082.0
DD 963	-	-	-	2/1737.1	1/982.3
FFG-7	2/888.4	2/774.0	2/813.4	3/1274.8	3/1348.0
LHD-1	88.8	1/1328.1	-	120.3	1/987.0
LPDX	-	-	-	-	110.0
LSD-41	1/417.0	1/477.2	2/801.4	2/840.4	2/847.5
MCM	4/371.0	4/342.3	5/440.5	-	-
MSH-1	-	1/73.1	-	5/280.0	5/273.0
AOE	-	-	1/706.4	1/818.1	2/1272.4
AE	-	-	1/400.0	2/825.3	1/431.6
AO	-	-	-	1/405.0	1/405.1
AGOS	20.3	1/183.7	-	2/300.0	3/305.0
ARS	1/84.0	1/86.5	-	-	-
TAO	1/320.0	3/530.4	4/1001.5	4/1082.6	6/1700.1
TAH(C)	1/300.0	1/300.0	-	-	-
TARC	-	-	-	1/261.0	-
TAGOS(C)	-	-	44.1	1/88.4	-
TAKX(C)	-	32.0	3/178.0	-	-
TAK(C)	-	2.9	1/77.5	-	-
TAKRX(C)	4/322.6	-	-	-	-
LAND CRAFT	83.1	144.0	281.7	302.2	312.0
SERV CRAFT	78.0	88.6	204.0	100.5	130.5
OUT	136.4	125.2	138.6	140.0	140.4
PD	100.3	114.1	140.0	144.2	180.0
COST GROWTH	310.2	-	-	-	-
ESCALATION	327.2	-	-	-	-
SHIP DESIGN	97.2	118.0	107.7	207.7	208.0
MFG TECH	75.0	-	-	-	-
TOTAL	18,640.3	12,086.7	16,752.5	20,201.0	28,874.0
NC/C,B,SLEP	18/7	21/2	34/5	38/1	38/1

Insufficient rates in the construction of capital warships have caused extended building periods with resultant increased costs. Economies which can be realized in the CVN program are greater than in any other, both-in terms of dollars saved and ship operating years gained. The full funding of two NIMITZ class CVN's in FY 1983 will permit the delivery of CVN-71 by 14 months, and improve delivery of CVN-72 and CVN-73 by nearly two years each. Despite the fluctuation in FY 1983 TOA, the outlay rates to support this five year SCN plan are stable and provide desired ulitization of the shipbuilding industry. The overview of the FY 1983 SCN budget request is shown on the following page.

FY 1983 BUDGET
SHIPBUILDING AND CONVERSION NAVY (SCN)
($ IN MILLIONS)

PROGRAM		NUMBER	BUDGET REQUEST
TRIDENT (SSBN)		2	2485.0
ATTACK SUBMARINE (SSN)		2	1443.4
AIRCRAFT CARRIER (CVN)		2	6795.3
CARRIER SLEP (CV-SLEP)		1 *	699.5
GUIDED MISSILE CRUISER (CG-47)		3	3134.4
BATTLESHIP (BB)		1 *	417.4
GUIDED MISSILE FRIGATE (FFG)		2	666.4
LANDING SHIP DOCK (LSD)		1	417.0
AMPHIBIOUS ASSAULT SHIP (LHD)		-	55.0
OCEAN SURVEILLANCE SHIP (AGOS)		-	24.3
SALVAGE SHIP (ARS)		1	84.0
MINE COUNTERMEASURES SHIP (MCM)		4	371.6
FLEET OILER (TAO)		1	320.0
HOSPITAL SHIP (TAH)		1 *	300.0
FAST LOGISTICS SHIP (TAKRX)		4 *	322.6
CRAFT			162.1
SHIP DESIGN			97.2
COST GROWTH			314.2
ESCALATION			209.2
OUTFITTING			136.4
POST DELIVERY			168.3
MANUFACTURING TECHNOLOGY			25.0
TOTALS:	18 NEW CONST * 7 CONVERSIONS	25	$18,648.3

I will now quickly discuss each element of the FY 1983 request.

In view of the deletion by the Congress in FY 1982 of the tenth TRIDENT submarine, we are requesting two ships this year, the tenth and eleventh of the class. As you know, the Navy and the Electric Boat Division of General Dynamics have worked out a mutually acceptable resolution of previous problems, and we are confident that Electric Boat can and will deliver these ships on time and within cost projections. The lead ship, USS OHIO, delivered last year and has performed far better than expected. Eight ships were previously under contract and the ninth, the FY 1981 ship, was awarded to Electric Boat Company in January. After two ships in FY 1983, we anticipate building one TRIDENT per year during the remainder of the Five Year plan. This building rate represents the minimum construction level required to provide for the orderly replacement of existing POLARIS and POSEIDON submarines. Eventual program size will be determined by results of future SALT actions and national strategic decisions. For two ships in FY 1983, we are requesting $2485.0 million.

TRIDENT - SSBN

	FY 1982	FY 1983
NUMBER OF SHIPS	0	2
COST	-	$2768.2M
LESS ADVANCE PROCUREMENT FROM PRIOR YEARS	-	$527.1M
PLUS ADVANCE PROCUREMENT FOR FUTURE YEARS	330.7	$243.9M
NET FUNDING REQUIREMENT	$330.7M	$2485.0M

In the FY 1982 DOD Appropriations Act, the Congress provided funds for two SSN-688s in FY 1982 and long lead funding for three SSN-688s in FY 1983 and thre in FY 1984. In order to achieve the force level objective of 100 SSNs, we need to build between three and four submarines a year. Funding constraints in FY 1983 do not permit a third submarine this year but we hope to build three in FY 1984 and obtain three to four per year thereafter. These submarines will all be constructed with the bow mounted Vertical Launch System for TOMAHAWK cruise missiles. This greatly increases the offensive capability of the SSN-688 and makes it a far more significant contributor to national defense. This year we are requesting $1443.4 million for two SSN-688s which includes advance procurement for three ships in FY 1984 and four in FY 1985.

NUCLEAR ATTACK SUBMARINE
SSN-688

	FY 1982	FY 1983
NUMBER OF SHIPS	2	2
COST	$1095.5M	$1196.8M
LESS ADVANCE PROCUREMENT FROM PRIOR YEARS	-$150.4M	-$169.4M
PLUS ADVANCE PROCUREMENT FOR FUTURE YEARS	- $397.9M	$416.0M
NET FUNDING REQUIREMENT	$1343.0M	$1443.4M

The aircraft carrier remains the centerpiece of our Navy battle groups. This versatile ship, with its mix of offensive and defensive aircraft, provides the United States with power projection and sea control capability unmatched by any potential adversary. Navy's goal is still a deployable force of fifteen carriers. We are requesting full funding in FY 1983 of $6795.3 million dollars for CVN-72 and CVN-73.

NUCLEAR POWERED AIRCRAFT CARRIER
CVN

	FY 1982	FY 1983
NUMBER OF SHIPS	0	2
COST	-	$7270.3M
LESS ADVANCE PROCUREMENT FROM PRIOR YEARS	-	-$475.0M
PLUS ADVANCE PROCUREMENT FOR FUTURE YEARS	$475.0M	-
NET FUNDING REQUIREMENT	$475.0M	$6795.3M

This amount, in addition to the $475 million appropriated by the Congress in FY 1982, will permit delivery of each of these ships over twenty-two months earlier than if we bought them one at a time. As you know, Newport News Shipbuilding and Drydock Company is the only yard in the United States capable of building a nuclear aircraft carrier. We are confident that the ability to implement this multi-ship procurement contract with Newport News will result in the acquisition of these ships at the lowest possible cost in the shortest period of time. There can be no clearer signal of national resolve than the authorization and appropriation by the Congress of these powerful warships which have been requested by the Administration.

The CV SLEP program was initially developed to extend the service lives of four conventionally powered Forrestal class aircraft carriers from the nominal thirty years to forty-five years. The first ship to be inducted into the program, USS SARATOGA, entered the Philadelphia Naval Shipyard in October 1980, and is now over fifty percent complete. USS FORRESTAL, the second ship in the program, will commence her SLEP in Philadelphia in January of 1983. Based on the success to date of the initial SLEP program and the necessity to extend the service life of the large deck carriers to sustain force levels, Navy has decided to extend the SLEP concept to the four carriers of the Kitty Hawk and J. F. Kennedy classes and to our first nuclear carrier, USS ENTERPRISE. This will stretch-out the program until 2001 and provide over 130 additional years of carrier service life at a very attractive cost of less than twenty-five percent of the estimated new construction cost of a replacement ship. This year we are requesting $699.5 million for the SLEP of USS FORRESTAL.

CARRIER SERVICE LIFE EXTENSION PROGRAM
CV-SLEP

	FY 1982	FY 1983
NUMBER OF SHIPS	0	1
COST	-	$698.5M
LESS ADVANCE PROCUREMENT FROM PRIOR YEARS	-	-$162.0M
PLUS ADVANCE PROCUREMENT FOR FUTURE YEARS	$81.0M	$163.0M
NET FUNDING REQUIREMENT	**$81.0M**	**$699.5M**

The AEGIS equipped CG-47 class ship is our highest priority surface combatant. The FY 1983 Budget includes a request for three, the eighth, ninth and tenth ships of the class. The first ship of this class, TICONDEROGA, was authorized and funded in the FY 1978 budget and was christened last year at Pascagoula, Mississippi by Mrs. Nancy Reagan. Thus, the first ship is afloat and will deliver in January of 1983, less than a year from now.

The AEGIS system installed in the CG-47 class is the most advanced anti-air warfare system in the world and is designed to counter the full spectrum of anti-ship missile threats of the 1980s and beyond. It provides area air defense in a high-density, high-threat, anti-ship missile environment. Our continuing assessment of Soviet missile-launching capabilities confirms that CG-47 class ships are urgently required in the fleet in numbers.

During the development of AEGIS, the space and weight requirements for installation aboard ship have been reduced to the point where the system can be accommodated in the proven hull of the Spruance class destroyer. This has reduced costs. In addition to a quantum improvement in anti-air warfare, the AEGIS CG-47 class has superior capabilities in anti-submarine and anti-surface ship warfare, and improved passive protection. CG-47 class ships will operate as an essential component of battle groups formed around our aircraft carriers, and will enhance the battle group's ability to fight and survive in the most hostile environment.

The funding requirement for the CG-47 class in FY 1983 is $3134.4 million for three ships.

AEGIS CRUISER CG-47

	FY 1982	FY 1983
NUMBER OF SHIPS	3	3
COST	$3105.7M*	$3132.9M
LESS ADVANCE PROCUREMENT FROM PRIOR YEARS	-$129.0M	-$20.7M
PLUS ADVANCE PROCUREMENT FOR FUTURE YEARS	$20.7M	$22.2M
NET FUNDING REQUIREMENT	$2997.4M*	$3134.4M

* INCLUDES $80.0M IN FY 1982 SUPPLEMENTAL

Despite all rumors to the contrary, the battleship program is alive and well. No program in recent memory has attracted more interest and controversy than the reactivation of the four IOWA class battleships. They are described as too old, too vulnerable and too obsolescent. In fact, when recommissioned with their original sixteen inch guns with HARPOON and TOMAHAWK missiles added, they will be the most powerful and survivable surface combatants afloat. To date, the reactivation of NEW JERSEY has been fully funded and $88 million in advance procurement appropriated for IOWA. This year we are requesting the remaining funding for IOWA as well as long lead for the third ship. We will undoubtedly again hear argument against reactivation, but we are strongly convinced that the reactivation of these ships provides the U.S. Navy more offensive firepower per dollar expended than any other item in the shipbuilding program. These ships, with more armor and more firepower than any contemporary ship, are unquestioned bargains and should have the full support of all who desire the resurgence of U.S. seapower. This year we are requesting $417.4 million for funding of IOWA and advance procurement for the third battleship.

BATTLESHIP REACTIVATION - BB(R)

	FY 1982	FY 1983
NUMBER OF SHIPS	1	1
COST	$326.0M	$411.4M
LESS ADVANCE PROCUREMENT FROM PRIOR YEARS	-$89.0M	-$88.0M
PLUS ADVANCE PROCUREMENT FOR FUTURE YEARS	$88.0M	$94.0M
NET FUNDING REQUIREMENT	$325.0M	$417.4M

The FY 1983 budget request continues the procurement of the FFG-7 class frigate with two additional ships and a funding requirement of $666.4 million.

GUIDED MISSILE FRIGATE
FFG-7

	FY 1982	FY 1983
NUMBER OF SHIPS	3	2
COST	$917.4M	$666.4M
LESS ADVANCE PROCUREMENT FROM PRIOR YEARS	-	-
PLUS ADVANCE PROCUREMENT FOR FUTURE YEARS	-	-
NET FUNDING REQUIREMENT	$917.4M	$666.4M

These frigates are intended to accompany amphibious forces, underway replenishment groups, and serve as convoy escorts to provide protection against air, surface, and subsurface threats.

The FFG-7 class frigate is equipped with a general purpose missile launcher which can fire the HARPOON Surface-to-Surface Missile for offensive operations against surface ships as well as the SM-1 medium range missile against aircraft and missile targets. Anti-submarine warfare equipment includes the long-range Towed Array Detection System, TACTAS--for tactical towed array sonar, backed up by a hull-mounted sonar and with facilities to accommodate two LAMPS MK III helicopters for long-range detection and torpedo attack against submarines. Other armament includes a 76MM dual-purpose NATO standard gun, a rapid-fire close-in point defense weapons system, and anti-submarine torpedoes. It contains survivability features superior to existing frigates.

Forty-eight FFG-7 class ships have previously been authorized, including three in the FY 1982 budget.

In the FY 1981 appropriation, Congress approved the first of the LSD-41 class and followed with the second of the class in FY 1982. This year, Navy is requesting $417.0 million for the third LSD-41.

LANDING SHIP DOCK LSD-41

	FY 1982	FY 1983
NUMBER OF SHIPS	1	1
COST	$344.8M	$379.2M
LESS ADVANCE PROCUREMENT FROM PRIOR YEARS	-$47.0M	-
PLUS ADVANCE PROCUREMENT FOR FUTURE YEARS	-	$37.8M
NET FUNDING REQUIREMENT	$297.8M	$417.0M

This request includes $37.8 million in advance procurement for the FY 1984 ship.

During the past year, the Department of the Navy has internally agreed upon an amphibious lift requirement which will support the assault echelon of a Marine Amphibious Force (MAF) plus lift for a Marine Amphibious Brigade (MAB). Procurement of this class of ship will enable us to begin the first phase of the modernization of our amphibious force which faces block obsolescence beginning in the early 1990s. The LSD-41 class ship will also provide increased capability to lift the Landing Craft Air Cushion Vehicle (LCAC). The second three LCACs are contained in the FY 1983 SCN request. The introduction of LCAC to the amphibious force will cause a significant improvement in our ability to transport heavy equipment to many more beaches world-wide, at high speeds and with a commensurate reduction in vulnerability.

In Fiscal Year 1982 the Congress appropriated $45.0 million for advance procurement of the Amphibious Assault Ship. This year we are requesting an additional $55.0 million in advance procurement with full funding of the lead ship in FY 1984, a year earlier than previously planned.

AMPHIBIOUS ASSAULT SHIP
LHD-1

	FY 1982	FY 1983
NUMBER OF SHIPS	0	0
COST	-	-
LESS ADVANCE PROCUREMENT FROM PRIOR YEARS	-	-
PLUS ADVANCE PROCUREMENT FOR FUTURE YEARS	$45.0M	$55.0M
NET FUNDING REQUIREMENT	$45.0M	$55.0M

The ship will be designed to be convertible, so that it can perform the traditional role as an amphibious ship or an alternative one as a V/STOL carrier for sea control or close air support. This conventionally powered LHD will be capable of operating in concert with other forces in an amphibious warfare and sea control environment. The LHD will operate primarily as an element of an amphibious task group or force in sustained offensive operations to gain or maintain sea control through projection of power ashore.

In Fiscal Year 1982 the Congress appropriated $99.7 million for the lead ship of a new class of Mine Countermeasures ship and the FY 1982 Supplemental added $19.0 million. This year we are requesting $371.6 million for four follow on ships.

MINE COUNTERMEASURES SHIP
MCM

	FY 1982	FY 1983
NUMBER OF SHIPS	1	4
COST	$117.9M*	$371.6M
LESS ADVANCE PROCUREMENT FROM PRIOR YEARS	—	—
PLUS ADVANCE PROCUREMENT FOR FUTURE YEARS	—	—
NET FUNDING REQUIREMENT	$117.9M*	$371.6M

*INCLUDES $19.0M IN FY 1982 SUPPLEMENTAL

This represents a one year acceleration of the MCM program and is a reflection of the severity of the mining threat which we could face. These ships will replace the aging fleet of MSOs currently in service. They are designed to maximize shipboard performance while maintaining low acquisition and operational expenditures. The command and control suite will be state-of-the-art; capable of automatically integrating, processing and simultaneously displaying data from all ships's sensors; capable of storing and retrieving data for use by own ship and other fleet units for channel conditioning, mine hunting, neutralization and mechanical minesweeping operations. It is planned to construct 14 ships of this class.

Since 1979 Congress has authorized construction of 12 TAGOS ships. These monohull ships support the mission requirements of the Surveillance Towed Array Sensor System - or SURTASS. These 12 ships are currently under contract and will start to deliver in 1983. These ships have been properly sized to execute their mission over a majority of the worlds oceans. However, we also need a class of ship which can maintain a high degree of stability in rougher and stormier seas then can the conventional hull TAGOS. SWATH technology has proven its ability to sustain operations in higher sea states, and it is timely to employ this dual hull ship in this mission area. This year we are requesting $24.3 million in advance procurement for the lead AGOS as an FY 1984 ship and the thirteenth ship in the SURTASS program.

OCEAN SURVEILLANCE SHIP AGOS

	FY 1982	FY 1983
NUMBER OF SHIPS	-	0
COST	-	-
LESS ADVANCE PROCUREMENT FROM PRIOR YEARS	-	-
PLUS ADVANCE PROCUREMENT FOR FUTURE YEARS	-	$24.3M
NET FUNDING REQUIREMENT $	-	$24.3M

It is our intent to build six AGOS which will, with the twelve TAGOS previously authorized, meet the minimum force level requirement of eighteen SURTASS ships.

The FY 1983 request contains funds for the fourth new construction Salvage ship. This class is essentially a repeat of the successful ARS-38 class, updated to state-of-the-art equipment, habitability and environmental standards. A total of five ships is planned. $84.0 million is requested in FY 1983 for this ship.

SALVAGE SHIP - ARS

	FY 1982	FY 1983
NUMBER OF SHIPS	2	1
COST	$134.2M	$74.0M
LESS ADVANCE PROCUREMENT FROM PRIOR YEARS	-	-
PLUS ADVANCE PROCUREMENT FOR FUTURE YEARS	-	$10.0M
NET FUNDING REQUIREMENT	$134.2M	$84.0M

The FY 1983 budget requests $320.0 million for the construction of the second ship of the TAO-187 class.

FLEET OILER - TAO

	FY 1982	FY 1983
NUMBER OF SHIPS	1	1
COST	$257.1M*	$210.2M
LESS ADVANCE PROCUREMENT FROM PRIOR YEARS	-	-
PLUS ADVANCE PROCUREMENT FOR FUTURE YEARS	-	$109.8M
NET FUNDING REQUIREMENT	**$257.1M**	**$320.0M**

*INCLUDES $58.0M IN FY 1982 SUPPLEMENTAL

In the original FY 1982 request, Navy had included $10.0 million for advance procurement for acquisition and conversion of the SS United States as a Hospital Ship. This request was later deleted as the availability and conversion cost of the SS United States became questionable. The $300 million requested in the FY 1983 budget is the first increment of a DOD estimate of $560 million over two years (FYs 1983-1984), which will permit the acquisition and conversion of two or more hospital ships with a combined capacity of at least two thousand beds and twenty-four operating rooms.

This includes $109.8 million in long lead funds for the third, fourth and fifth ships of the class, which will be contained in the FY 1984 budget request. This class has been approved by the Department of Defense for a five ship multi-year initial procurement, which will result in a saving of $72.0 million in acquisition cost of the first five ships. The TAO is one of our highest priority programs because of the urgent need to replace obsolete fleet oilers and to achieve a force level objective so critical to maintaining our Battle Forces at sea. Although these ships will be primarily constructed to commercial standards to reduce cost and accelerate construction, they fully meet our military requirements and could, in the event of loss in battle of our Battle Group station ships, provide partial replacement support.

HOSPITAL SHIP TAH

	FY 1982	FY 1983
NUMBER OF SHIPS	0	1
COST	-	$300.0M
LESS ADVANCE PROCUREMENT FROM PRIOR YEARS	-	-
PLUS ADVANCE PROCUREMENT FOR FUTURE YEARS	-	-
NET FUNDING REQUIREMENT $	**-**	**$300.0M**

Initial bids from prospective vendors have already been requested. The lack of afloat medical care is widely recognized as a most serious deficiency in our ability to support combat operations ashore, either employing amphibious or RDJTF forces. Afloat medical care in the form of hospital ships is a part of the overall continuing care needed to handle casualties which begins with the combat unit itself and extends through fleet hospital units ashore to CONUS hospitals for eventual recovery of the most serious combat casualties.

Six of these ships were purchased from a commercial source with FY 1981 funds. The FY 1982 appropriation provided for the purchase of the remaining two ships of the eight available and for the Roll on/Roll off (RO/RO) conversion of the first four. The $322.6 million requested this year is for the RO/RO conversion of the final four ships and for the maintenance of the ships while in the conversion period, a charge which can only be applied against SCN funds.

FAST LOGISTICS SHIP TAKRX

	FY 1982	FY 1983
NUMBER OF SHIPS	4	4
COST	$410.0M	$322.6M
LESS ADVANCE PROCUREMENT FROM PRIOR YEARS	–	–
PLUS ADVANCE PROCUREMENT FOR FUTURE YEARS	–	–
NET FUNDING REQUIREMENT	$410.0M	$322.6M

With the approval of this FY 1983 request, we will complete the purchase and conversion of eight ships which will provide a valuable element of fast sealift as an important contribution to the readiness posture of the nation. Without the full RO/RO conversion, these ships will not satisfy U.S. Army requirements for loading divisional sets of equipment. Of even greater significance is the fact that load and offload times would be much greater and would require far more sophisticated port facilities for offloading than would the requested RO/RO conversion.

CRAFT
($ IN MILLIONS)

	QUANTITY	COST
LANDING CRAFT AIR CUSHION (LCAC)	3	$65.4
LANDING CRAFT (MEDIUM) (LCM)	20	$17.7
HARBOR TUG (YTB)	6	$31.7
TRAINING CRAFT (YP)	6	$28.7
CARGO BARGE (YC)	6	$3.3
FLOATING CRANE (YD)	3	$15.3
TOTAL		$162.1M

The FY 1983 Craft request includes both Landing and Service Craft lines for a total of six separate programs. The most critical of these is the Landing Craft Air Cushion (LCAC), a most important element of the amphibious assault force of the future. It has been developed in tandem with the LSD-41 to ensure compatibility. Additionally, the LHD-1 design will incorporate features to optimize LCAC operations. The request for three LCAC in FY 1983 marks the second production year for this program. Other Landing Craft included this year are conventional LCM-8 boats, which are being purchased to support the TAKX program, funded under the O&MN

account. Twenty LCM-8 are requested at a cost of $17.7 million. In the Service Craft line we are requesting six Patrol Craft (YP), which will replace the aging craft used to support Midshipmen training programs at the U.S. Naval Academy. The request also contains funds for six Large Harbor Tugs (YTB), three Floating Cranes (YD) and six non self propelled open lighters (YC). These craft are required to support the expanding size of the fleet and also to replace worn out elements of the current inventory.

OTHER SHIPBUILDING
($IN MILLIONS)

	FY 82	FY 83
OUTFITTING	$73.0	$136.4
POST DELIVERY	$117.2	$168.3
COST GROWTH	$290.4	$314.2
ESCALATION	$224.0	$209.2
SHIP DESIGN	-	$97.2
MANUFACTURING TECHNOLOGY	-	$25.0

The FY 1983 request includes $136.4 million of the outfitting of new ships. Post Delivery requirements for the correction of construction and acceptance trial deficiencies in new ships total $168.3 million.

COST GROWTH/ESCALATION

Of the total $523.4 million requested in this category, $209.2 million is for escalation on prior year programs due to higher inflation rates on construction contracts than predicted in prior year indices. This year's cost growth request contains four items including $139.4 million for VLS TOMAHAWK installation into SSN-688 class nuclear attack submarines presently under construction, $43.5 million for Future Characteristics Changes in the FY 1980 CVN, $91.3 million in increased cost for the TRIDENT submarine program and $40.0 million to restore escalation and growth reserves for the FY 1981 SSN-688 which was recently awarded to Electric Boat. The additional funding requirement for that submarine is a result of increased costs in the program since those funds were initially appropriated by the Congress.

SHIP DESIGN

The requested ship design line item in the SCN Appropriation will cover the contract design of all ships in the Navy's shipbuilding program. The contract design phase is normally a joint Navy/Shipbuilder effort which refines the ship design developed during the preliminary design phase and produces a mutually agreed upon set of contract drawings and specifications.

The department believes that returning this element of the design funding process to the SCN account will provide closer correlation with the building program and permit greater reaction to Congressional initiatives.

MANUFACTURING TECHNOLOGY

The Manufacturing Technology or MANTECH program provides for the development of productivity improvements in the U.S. shipyards. In the past the shipbuilding industry has made relatively few advances in improving the industrial process within the yard complex. The FY 1983 budget request of $25.0 million is intended as initial seed funding to provide for productivity enhancement in ship construction, particularly within the CVN and TAO lines. During the course of FY 1983, a careful evaluation will be made regarding future applications of MANTECH to the entire shipbuilding program with a forecasted direct payoff in the long term reduction of ship procurement costs.

Mr. Chairman, that completes my overview of the FY 1983 Shipbuilding and Conversion Program. I am delighted to have had the opportunity to appear before this committee in furtherance of our joint desire to significantly enhance the United States Navy as we seek to maintain maritime superiority. As I noted in my opening remarks, this is truly a watershed year for shipbuilding, and I earnestly solicit a continuation of the strong support which this committee has historically given to our shipbuilding program.

Thank you very much.

U.S. SHIPBUILDING CAPACITY

I will get back to that question. I know my colleagues here have some questions.

Senator Specter, do you have some questions?

Senator SPECTER. Thank you, Mr. Chairman.

I came principally to listen and learn today, but I do have one question which comes to mind regarding the sufficiency of our shipbuilding facilities in the United States. That has been brought to my personal attention by events recently at Sun Ship in Chester, Pa., that has been taken over by Penn Shipping.

The question I have is about the adequacy of our facilities in the United States to build ships should we face a national emergency, something of the nature of a war or a need for increased shipbuilding. What is your capacity at the present time to build ships?

Mr. SAWYER. I will try first and Admiral Fowler will follow me.

Basically, Senator, as I indicated with regard to the program we have identified, there is more than enough capacity available, certainly as regards the number of facilities.

With regard to the modernization of those facilities, I also feel that the private sector is doing quite well. Certainly they are not up to the par of the Japanese, or some of the European yards, but on balance, and certainly since the 1970's, our U.S. shipbuilders are pouring quite a bit of money back into the business.

I believe the number in 1981 was about $200 million invested, and this year it will be in excess of $250 million. The point is the primary base is adequate to meet the program.

Now, you also raised the question of mobilization. People generally think in the context of World War II, where all of a sudden we had to greatly expand the number of ships. We would be hard put, but I don't think that is any different in shipbuilding than in many other areas. By other areas, I mean people who build turbines and valves and boilers and all of the products that go into a ship.

DEFENSE PLANNING AND MOBILIZATION

Defense planning and mobilization is a big issue right now with this administration, but the base is generally adequate. We are putting a lot of money, both into our own naval shipyards to modernize them, and we also have a number of initiatives in manufacturing technology, to help our private yards adopt newer methods and techniques, and more efficient techniques, with regard to production.

PENN SHIPYARD

Senator **Specter**. When you say that the facilities are sufficient for the current programing, and you talk about mobilization, obviously it is impossible to predict what any mobilization needs might be.

When I had occasion recently to visit Penn Shipyard at Chester I was told that there are 11 shipbuilding facilities in the United States at the present time, and one of the concerns that I have had about Penn Ships not only from the parochial interest of jobs and the development of the economy of my own area, is the maintenance of a shipyard which is a very important resource if mobilization should occur, and if we need to expand our shipbuilding facilities.

That raises a question in my mind as to your view as to the nature of the disadvantage, and to what extent, if a facility like Penn Ship, the old Sun Shipyard, were to be closed for lack of work, how serious an impact would that be on an important resource.

Mr. **Sawyer**. I certainly think it would be serious from a mobilization standpoint. We have 26 major shipyards in the United States today, and that could be a yard currently involved in our business or in our programs.

Senator **Specter**. Perhaps it was, but that figure was given to me and I ask for an enumeration of it.

Mr. **Sawyer**. I think that there are about 8, and we could expand to 11 or 13 in our 5-year program, but we have the facilities presently on the order of 26 major new construction yards. The Sun yard is one of about five or six shipyards which have been very active in the past in commercial-type vessels and not very active in Navy new construction.

As I indicated to the chairman, our program is not going to be able to keep all 26 major shipbuilders busy in the construction program. A lot of them are getting interested in repairs and overhauls, as they see that more Navy work will be going to the private sector.

U.S. CONTRACTS ON EUROPEAN SHIPBUILDING

Senator **Specter**. From time to time I see some press accounts about U.S. contracts for European shipbuilding. To what extent does that figure in your plan?

Mr. **Sawyer**. It is not in our plans, of course, but on the commercial side there has been a 1-year allowance for U.S.-flag shipowners to go abroad for new construction and conversion. I believe there will be some initiatives this year to extend that, whether for a time period or indefinitely. This has certainly had a negative impact on the commercial backlog of business in the United States.

In the Navy we operate under a prohibition which the Appropriations Committees put in annually, and I believe the Armed Services Committees are now also putting in, which states that we cannot go abroad for new construction of ships.

I might add as a part of that question that there have been a number of Buy American initiatives which are in selective and targeted areas which had me troubled because they impact on some of our shipbuilding programs, designed not so much from an industrial base standpoint but really to provide a given offerer with a selected advantage over his competitor.

In some of our programs we are going to permit the Navy a foreign built ship, a ship that has already been built foreign, to be reflagged in the United States provided it is converted in the United States and owned by a U.S. citizen. But the current allowance in the commercial sector for the U.S. owners to go abroad definitely has a very negative impact on our shipbuilding people.

Senator **Specter**. Do you think it ought to be abandoned?

Mr. **Sawyer**. I don't think so, sir, because the strict economic facts of life are that without subsidy support in the crucible of the international marketplace—and now I am talking personal opinion more than as any official witness, having spent some years in that business—it is approximately two times as expensive to build a commercial ship in the United States as abroad. That is a heavy load for an operator to have to carry around.

SUBSIDIES ON FOREIGN SHIPBUILDING

Senator **Specter**. When you talk about the crucible of the world marketplace, are those facilities abroad not subsidized?

Mr. **Sawyer**. I believe very strongly that they are, sir. The answer to your question is that whether subsidized directly or indirectly, I believe that it is not a fair match.

Senator **Specter**. That makes it very difficult. If you are talking about the inability of American facilities to meet the foreign facilities as a matter of free trade you might have a pretty good argument. If you are talking about facilities which are subsidized and then our laws permit the utilization of those facilities at a time when you are testifying that there is insufficient work to keep alive the facilities of the United States, we face a very serious potential if we should have a need for mobilization.

Mr. **Sawyer**. Absolutely. And not only that, as you probably noticed from looking over our shipbuilding program, we have more T-type vessels and sea lift support ships in our budget than in prior years. The reason is that we do not have a capable merchant marine to be able to fall back on in an emergency for our sealift vessels. It is much less in terms of what it has been.

Senator **Specter**. Thank you very much.

SARATOGA SLEP

Senator **Stevens**. While the Senator from Pennsylvania is here, let me talk a little bit about the *Saratoga* service life extension program which is up in Philadelphia. When we first authorized that we had a ceiling established by the Navy on that of $535 million. We now have a reprograming of $14 million for improvements which will exceed that ceiling.

I know that, as Senator Specter has said, he has discussed this and it has a problem as far as we are concerned. The Navy set a ceiling on the *New Jersey*, too, but we didn't legislate it, and you set it. We didn't legislate this ceiling and you set it yourselves and now you want us to exceed it by reprograming rather than a budget request.

Can you tell us why you have to have a reprograming, and what is the time factor involved, and why are you exceeding your ceiling that was self-imposed?

Mr. **Sawyer**. We set that ceiling in October 1978, for $515.4 million. It was subsequently adjusted by escalation up to a current figure of $535 million.

Incidentlly, Senator, the people in Philadelphia are doing a superb job on the *Saratoga*. I was up there just 2 weeks ago today. It is about 90 percent finished in terms of physical progress of the work, and a week ago Monday the ship passed its examination of the first machinery space.

I guess on the order of 1,000 compartments have been checked out and turned over to ship's force, and there are several hundred in the crew living on the ship. The work is proceeding quite well.

I think it has turned out to be a very good deal in terms of rehabilitating an aircraft carrier for this amount of money. But we did set ourselves a target back in October 1978, and the ship arrived in the shipyard on October 1, 1980, and in about three-quarters of the time to do the work about 90 percent of the physical work has actually been done. From here on out it is getting pretty much into the testing phase.

As we turn over compartments and finish up work and look at the condition of the ship, we say to outselves that we would like to do a little bit more. There are things that we didn't think we should do or that the ships force plan and to do that they aren't going to get around to doing.

The ship is not going to come out looking quite as well as we had hoped it would. That is not to say we missed our objective. We think we are pretty well on our objective. I think it was one fantastic chore to set a target of $515 million back in October 1978, and to come as close as we have today.

As we finish up a ship we carefully go through and check everything out and turn it over to the ship's force, and we make a list of deficiencies so they can correct them right then and there or at some subsequent time.

We said to ourselves we have some deficiencies and think another $14 or $15 million would put this ship in a better condition.

Senator **Stevens**. I think you missed my point. The reprograming statement says that this money will be utilized to correct deficiencies being documented in the compartment turnover process, which includes correction of minor electrical deficiencies, replacement of damaged and missing fixtures, and labeling, as well as other repairs to damaged ventilation systems, various piping system brackets and installations.

This is new work which during the initial SLEP program had been anticipated would be corrected by the ship's force.

Mr. **Sawyer**. Yes, sir.

Senator **Stevens**. And during the period the magnitude of the problems demonstrated these for accomplishment. So it is new work, is that right?

Mr. **Sawyer**. Yes.

Senator **Stevens**. Why didn't you ask for it in the budget? And why are we reprograming money in a manner that will escape really any exposure in the floor in an area where there was a ceiling established by the Navy in advance?

I am sure you remember, and my colleague may not remember that battle, but I remember it very well, as to whether this ship was going to Philadelphia or Newport News and that ceiling was deferred in relation to sending the ship to Philadelphia rather than to a private shipyard. Isn't that correct?

Admiral FOWLER. Yes. If we had anticipated this long enough to have gotten it in the budget cycle, we could have put that in as an item in the budget request. We didn't meet that cycle, however, although it is our policy normally to cover the costs within the line for a given ship.

Senator STEVENS. We will get back to this in a minute.

Senator Kasten has to go to another committee and I indicated to him we would yield to him to get his questions to this panel.

TANKER REPLACEMENT PROGRAM

Senator KASTEN. I am sorry but I have to go to the Budget Committee, and I wanted to talk for just a minute about the T–5 tanker replacement program.

First of all, I think it is important that we develop and maintain a strong shipbuilding capability, and I understand in response to Senator Specter you agreed with that. The Great Lakes Shipyards has the capability for building the T–5 program and those shipyards are very important to our national defense industrial base.

Most Navy programs, as you know, cannot be accommodated by these shipyards because of the problem of getting the ships in and out of the Great Lakes, but the T–5 program is one which the Great Lakes shipbuilders could fill. My understanding is that they have a good record in terms of cost and performance.

Is that your understanding?

Mr. SAWYER. I think with regard to the yard that you are particularly interested in, which would be Bay Shipbuilding, and of course Peterson, which also in Sturgeon Bay. Both yards have excellent reputations. I think Bay Shipbuilding has one of the best reputations.

Senator KASTEN. What is the status right now of the T–5 tanker replacement program, and when are the final bids due? When do you expect to make a decision on contract awards?

Mr. SAWYER. I think it is fairly shortly. I didn't provide information on that directly but I am sure it will be come time in the next couple of months. May I provide that for the record?

[The information follows:]

T–5 TANKER REPLACEMENT PROGRAM

The T–5 tanker solicitation for the charter of five tankers is currently on-going. Participating contractors submitted the technical portion of their proposals on 3 May 1982. The Military Sealift Command is currently reviewing the proposals to ensure that the requirements of the Circular of Requirement are met in the specifications provided by potential contractors.

Pricing and financial proposals will be submitted in late May or early June 1982. A firm date has not yet been established because discussions on the technical portion of the proposals may impact on pricing.

Current plans are to receive pricing proposals not later than early June 1982 and complete the evaluation/selection process prior to 1 July 1982. The information will then be submitted to Congress to comply with a 30-day notification requirement. Upon Congressional approval, award is planned for early August 1982.

PROGRAM PRIORITY

Senator KASTEN. How does this program fit in the overall Navy shipbuilding and conversion requirements, and what kind of a priority do you put on this program?

Mr. SAWYER. My priority would be relatively level, a point-to-point tanker that is really a replacement for existing ships.

BUY AMERICAN ACT

Senator KASTEN. My understanding is that certain procurement restrictions apply to the program, the Jones Act, or the Buy American Act, or both. Do you know precisely what is required in terms of domestic procurement under the applicable provisions?

Mr. SAWYER. We have received some correspondence on that from colleagues of yours in the State of Wisconsin relating to Buy American. Of course, the program we are proposing here will be a long-term charter. The Navy is not building the ships, we are buying the service.

The provisions, as I understand them, would be that Buy American, per se, would only apply as it comes through the Jones Act with regard to buying American for a certain percentage of the gross ship as opposed to specific components or systems. This is one of the programs where I see what I call a targeted hit in terms of Buy American, that there are number of other competitors. I think the reason for it has to do with the propulsion plant, specifically. We are providing a lot of direct business for our propulsion suppliers in our Navy shipbuilding account and the main line account and we have diesels going in our LSD-41 class.

I can think of a number of other programs where we are going to be using mostly and properly so, U.S.-built equipment. The T-5 program is one that is going to be based on economics. We are looking for a good economic price for that point-to-point service. We would like to see the owner, whoever is going to own the ship, have the flexibility to make whatever decisions are required and still stay within the law as it now exists.

Senator KASTEN. It is my understanding that the House Armed Services Committee report language recommends that the military sea-lift command seriously consider applying a domestic preference to the purchase of the main propulsion system and other ship components for the T-5 tanker replacement program.

Do you intend to follow that report language?

Mr. SAWYER. I don't personally, sir, not at all. I think we will strongly consider it but in the final analysis we are buying the service and we are not buying the ship.

Senator KASTEN. Would the requirement to procure domestically produced engines make the program cease to be cost effective?

Mr. SAWYER. It might. I would like to have the crucible of the marketplace decide that. This is only a 5-ship program and we are looking here for economy and efficiency.

Senator KASTEN. Thank you very much.

Mr. SAWYER. Thank you.

SARATOGA SLEP

Senator **Stevens**. Let's finish up, if we may, on that question about the *Saratoga*. The problem really is the ceiling, and this is the first time I knew that you had increased the ceiling with an inflater.

Do you intend to increase the ceiling on the *New Jersey* in a similar manner with an inflater?

Admiral **Fowler**. I know of no present intention to do that. The escalation business works normally in the private sector where we have a longer-term contract. We don't normally apply this kind of thing and I am not exactly certain, Senator, that was applied in the case of *Saratoga*. Escalation is kind of an automatic index on some of the material.

Senator **Stevens**. I was led to believe that this primarily was related to upgrading the living quarters of the *Saratoga* and I don't find that in the statement supporting the reprograming. Is that right?

Admiral **Fowler**. It is primarily in the area of habitability, habitability means the crew living and support spaces.

Mr. **Sawyer**. To answer one item, we are not talking about habitability upgrade. This is restoring spaces to their previous condition; a long shipyard overhaul has a way of wreaking havoc on space.

Admiral **Fowler**. This is not to make a modification or renew. It is simply to fix things.

Senator **Stevens**. I am not as concerned about this one as I am about the others, and whether the ceilings that we are setting, and targets for cost on this overhaul and repair program are going to be ceilings we can rely on.

Admiral **Fowler**. I think they are. For what I see on the *New Jersey* we are doing pretty well. I think it was a meaningful management action here that helped us keep the cost down. The reason we are coming to Congress on the *Saratoga* is not because of the ceiling but the financial rules. We have to come back for a reprograming action to be able to spend the money.

Senator **Stevens**. I know. But the fact that you have just sort of ignored the ceilings is really what causes me concern.

Admiral **Fowler**. I don't want to give you that impression. That would be an absolutely wrong impression for you to get. The fact that we have tight management controls throughout the Navy is well known and certainly it is not ignoring anything, but I think it is remarkable that in October 1978, 2 years before the ship arrived at the Philadelphia Shipyard, somebody was wise enough to arrive at the right amount of money to spend. I don't have my hand-held calculator, but I think it is within 3 percent.

How often do we see people who can project that far ahead within 3 percent? It is not very often.

Senator **Stevens**. That is my whole point. This program has a lot of guesses in it and we don't know what the size of it is yet. Here is an instance where we had a shipyard and we are saying it doesn't have any work to do and this was involved in an election. This whole concept of taking the *Saratoga* to Philadelphia was an election issue and everybody knew what was involved.

We were told this is a hard and fast estimate, and we will not exceed this amount of $535 million, and it was $514 million originally. But if you look at the reprograming request there is not one mention of the ceiling and why they have gone over it. If this had to be done, why didn't someone notice it and start reprograming within your ceiling to see that the work got done within the ceiling?

Admiral **FOWLER**. When it was noticed the action was taken.

Senator **STEVENS**. But the action was to ask for more money and not get the job done.

Admiral **FOWLER**. I am not going to ask the people in Philadelphia to work for nothing and I don't——

Senator **STEVENS**. Maybe we should have looked at it to see what other priorities you had and still stayed within the ceiling.

Admiral **FOWLER**. We did that, Senator. We controlled the week. We can finish the ship within the ceiling if we have to, but it won't be as complete as it should be.

Senator **STEVENS**. You can do it if you have to.

Admiral **FOWLER**. Yes.

Senator **STEVENS**. That is all I need to know.

Admiral **FOWLER**. But it won't be as good a ship as it should have been.

Senator **STEVENS**. This, Senator Rudman, is something that concerns your State.

Senator **RUDMAN**. I appreciate that very much.

Senator **SPECTER**. According to the information that I have, the work goes beyond living quarters but also goes to working on administrative quarters as well. Is that correct?

Admiral **FOWLER**. I believe you are correct. It is in the spaces that people inhabit, and it may not be just bunk rooms, and things like that.

Senator **SPECTER**. But the information that I also have is that it had not been thought that this work could have been completed by the ship's crew after turnover.

Admiral **FOWLER**. Yes, sir, that was the original plan.

Senator **SPECTER**. So that the modifications here turn on a couple of factors. One is the unanticipated magnitude of the work to be done, and also the decision that it makes more sense to do it at this stage as opposed to having it done by the ship's crew after turnover. You nodded "yes." Is that right?

Admiral **FOWLER**. Yes.

Senator **SPECTER**. I realize this is difficult for you to have at your fingertips, all of these precise figures, but could you give us an estimate as to what the cost would be to the Navy if this work were to be completed and turned over. It may well be it is cheaper to do it at this stage, albeit some $14.1 million, when you are at a certain point in the progress of the work, than having it done by the Navy after the turnover, even though it may be taken out of a different account.

So the question in my mind is what would it cost if we take it out of our vest pocket as opposed to our back pocket now?

Admiral **FOWLER**. It won't be any less expensive, and I can't give you an estimate of how much more it would be or what the differences would be, but generally speaking the cost of work is about the same, with slight differentials.

Senator SPECTER. The effect of your testimony is that there is work which has to be done and if it is done now it will cost the same as if it is done after the turnover from a different funding source of the Navy.

Admiral FOWLER. That is correct, sir.

Mr. SAWYER. May I add a couple of remarks. Not having been a part of the original decision to put it in Philadelphia, I would like to second Admiral Fowler's remarks that Philadelphia has done an outstanding job on the *Saratoga*. It is hard to understand the complexity that is involved, particularly when it is a major overhaul and conversion. There is no way, going into a major job of this type, that anyone can precisely define the scope of work.

For example, I have a list here of about $18 million worth of unanticipated gross items that occurred with the *Saratoga* during the overhaul. There were major problems with the main engines, and turbines had to be pulled out of the ship and sent back to the supplier, and it took a long time back at the supplier's plant. There were holes in the ship until those engines could come back. We are trying to extend the life of the ship to 45 years, and we want to put it back in first-class condition.

Obviously the emphasis was to stay within a cap and get those things, the working capability and the real necessary mission related and support related systems, back for that extension. As is often the case, you start your compartment close-ups and that is where you find that someone has walked away with a fixture or torn up a deck, and you find a lot of deficiencies.

As you recall, we decrewed this ship for the conversion and the system must work for the ship's force to take on expeditiously. I strongly supported this reprograming request knowing there might be some discussion on the matter. It is important that the ship go back into service and go back into the fleet in a first-class condition.

We have undertaken this complex overhaul and done it within the schedule and within 3 percent of the budget. I only wish that all of our overhauls and conversions could be done within 3 percent.

Senator SPECTER. Just one other aspect before returning you to Senator Rudman, whose indulgence I appreciate.

Had this gone to Newport News and these same items been encountered at this stage, they wouldn't have been completed there, would they? They would have been left to be completed by the Navy after the option had been completed?

Mr. SAWYER. It all depends upon whether they would have performed it under the budget.

Senator SPECTER. When you are talking about unforeseen and unforeseeable items, they would not have been a part of the obligation of Newport News in a private capacity?

Mr. SAWYER. That is correct.

Senator SPECTER. I am simply trying to deal with a very valid point that Senator Stevens has been raising here, and that is, if somebody had made an undertaking and obligation to complete certain work and now you are saying the work is not completed, and it might have been done under private auspices, that wouldn't be the situation here whereas this is unforeseeable, so it would not have been done by Newport News without the additional expenditure, in any event?

Admiral **Fowler**. That is correct. Under the same circumstances, we would have been coming forward asking for money to do this work. The only difference is, I would not have had the flexibility I have in dealing with a public shipyard. I would be in a position where I would have to issue a change to a contract.

TANKER REPLACEMENT PROGRAM

Senator **Rudman**. I wonder, Mr. Sawyer, if you could just go beyond your dialog with Senator Kasten concerning some of the procurement policies.

What precisely is the present status of the procurement of the T-5 program as a replacement for the tankers?

Mr. **Sawyer**. The present status, as I understand it, is that we have gone out requesting proposals from shipowners for long-term charter of replacement tankers for the T-5. Under their provisions, since it will be under the Jones Act, the owners have to comply with the Jones Act provisions to buy American. I can provide an answer for the record but offhand, as I recall it, that relates to a certain percentage of the total ship value.

Senator **Rudman**. That is correct.

[The information follows:]

T-5 Tanker Replacement Program

The Request for Proposals for the charter of the replacement tankers for the T-5 program requires that transportation services be provided by ships qualified for operation in coastwise navigation in accordance with the Jones Act (46 U.S.C. 883), since it is expected that some shipments on these vessels will be made between U.S. ports. The regulations implementing the Jones Act, as promulgated by the Coast Guard, require that the major components of a vessel's hull and superstructure be of U.S. manufacture, and that at least fifty percent of the cost of all machinery (including propulsion) and components which are not an integral part of the hull and superstructure relate to items procured in the United States.

ENGINE MODIFICATIONS

Mr. **Sawyer**. Now, there are certain parties that are competing for this contract who intend to use, I believe, modified designs on ships they have built in the past, which have certain engine configurations. Incidentally, that is one of the real drivers of the ship design and construction, so you like to minimize or do the minimum changes so you can have as firm as possible a price and very minimum additional first line costs because there is going to be a cost competitive situation.

MANUFACTURE OF MAIN PROPULSION PLANTS IN JAPAN

Senator **Rudman**. Am I incorrect or do I have some information that is incorrect, or is there a good possibility under some of these alternatives that the main propulsion plants to be used in these are to be manufactured in Japan?

Mr. **Sawyer**. That is quite possible. I would say of the current deep draft commercial ships we are currently building in the

United States, I think some large fraction—certainly more than half, or two-thirds—are of foreign origin.

Senator **Rudman**. So that it is probable that when the final decisions are made to porocure or replace tankers for the Navy and military sealift command, to replace the T-5's, it may develop that we end up with tankers that have main propulsion units essentially made in Japan?

Mr. **Sawyer**. I don't know what the exact arrangements are. I know in general for the slow-speed diesels, we have only built one of these in the United States and that was by Allis-Chalmers for the American President Line ships, which are building down in Avondale. The majority of the smaller tankers they are using are Sellers Bernstein.

Senator **Rudman**. What kind of engines are they?

Mr. **Sawyer**. Sellers and a large Swiss outfit, Bernstein. These slow-speed ships are being supplied out of Europe and Japan. I know license arrangements are being made with manufacturers in the United States. I don't know what the overall provisions or plans are.

U.S. DEFENSE INDUSTRIAL BASE

Senator **Rudman**. Well, I don't ask that question in a vacuum. I want to take you back now 1 year to a hearing we had in which Secretary of the Navy Lehman and I had a dialog, about procurement of foreign shipping.

In following up that hearing there was a major hearing held by this subcommittee on the whole question of America's military capacity. This of course goes far beyond Navy shipbuilding and it covers all sorts of things. We do not have those shipbuilding capabilities and the American people do not have the kind of industrial base in 1982 that we had in 1942, in terms of the kind of things that we need.

There was a lot of discussion at that time as to how we might encourage the expansion of America's industrial base in light of our employment and industrial base. I am not saying you are not encouraging expansion of our industrial base, I am just asking you whether or not you are doing it. It was the point of those hearings that the procurement process had to be very mindful of this very serious liability, if you will, for national defense. We should be doing things to encourage expansion and to do more than encourage it, to make sure those facilities are available.

My question is this: Knowing full well there is a high degree of likelihood that with no initiatives these propulsion units will be manufactured in Japan or anywhere else other than this country, cannot the Navy through your office be doing more to insure that American companies are getting involved in this particular area, either through licensing or through other effects?

Mr. **Sawyer**. I am doing everything I can to encourage our industry, and particularly our propulsion guys, to start to move out and obtain the more efficient engines that everybody has been using worldwide in the marine sector for the last 15 years. We are the last country to even begin to consider going to low-speed engines. It took the energy crisis for the owners to realize they were paying two or three times as much in terms of fuel costs for their sea plants as compared to slow speed diesels.

There are some arguments that medium speed is about as good, and you get into an argument about oil quality, but the economics, the crucible is there in the marketplace, and the owners' decisions. But I am a very strong believer in selective Buy American policies with regard to our warships and battleships. I do not see that blanket provisions of Buy American are particularly helpful to our economy or to the efficiency of the service. T-5 is about the bottom of the line with regard to Navy's needs. It is not a combatant ship and it is not even a front line replacement. It is a replacement, and probably the lowest of any of our shipbuilding programs that we could think of other than small boats.

I think we have every right to expect economy of service. We are going out with this rather novel approach of a charter program and that program is designed to supply U.S. ships from U.S. shipyards, but if it is not going to be economical, and if we have to pay more for it, I would not recommend to this committee that we proceed with the program.

Senator RUDMAN. I do not disagree with that, but it just seems to me that selective foreign purchases are something that we all expect throughout the entire array of our defense procurement. Even though they may be a third or fourth or fifth line ship in the Navy, we are talking about propulsion units and it just seems at least to me that to the extent we can encourage licensing of American diesel manufacturers and turbine manufacturers, some of these more up-to-date foreign designs, if you want to talk to Senator Kasten, who just left, or some of the other people, I know who are from the Midwest with unemployment rates of 13, 14 and 16 and 17 percent in some areas.

We had a hearing here about a week ago in which we really decried the Japanese for putting a very small part of their GNP into their defense effort. It is almost rubbing salt into the wounds and I don't care if it is only one propulsion unit, to take that unit and purchase that unit in Japan when we have people unemployed and it is on defense effort. Quite frankly, I think we ought to make a supreme effort to get these things built in this country. I think it is important.

Mr. SAYWER. I agree and, interestingly, in our TAO program we now go up about three or four rungs on that ladder, up toward a nuclear carrier. As you know, we are getting a 19 or 20 ship bid and it will be a front-line replenishment. In that area, I believe our plans are to require a license arrangement. This is with regard to the engine selection. Of course, we are the buyer, and if they intend to use a foreign engine they must license and after a certain number they must be built here in the United States. I strongly support that.

Senator RUDMAN. That is precisely the kind of thing that I am think of. I commend you for that because we are in the driver's seat. We are buying and we are paying for them. They can tell you anything they want, but if they want to sell their technology in this country paid with our taxpayers' dollars, and we say they will be licensed here I can assure you that they are going to be. Foreign manufacturers would rather get half a loaf than no loaf at all.

I just hope that you will continue that policy, because obviously it is important to our own national security, our economy, and our defense effort. I just picked this particular item knowing full well the low level of priority that it holds, because I think it is symbolic of the problem we are speaking about.

If you have any other information for the record involving the Navy's efforts in this area, I think we would all like to know about it.

Mr. **Sawyer**. I will be happy to respond.

[The information follows:]

License Arrangements for Producing Foreign Equipment

Licensing arrangements with foreign sources for production of their designed equipment systems in this country are not new to the Navy.

In those applications where foreign source equipment or systems have been installed, the Navy has encouraged production under a license arrangement in this country. In addition to the plan for the TAO engines, some other major equipment or systems that fall under this category include:

MK 75, Mod 0 76mm gun mount; an Italian design licensed for production in this country by the FMC Corp., Northern Ordnance Division.

MK 92, Mod 2 fire control system; a Dutch design licensed for production in this country by the Sperry Corp., Sperry Gyroscope Division.

Colt-Pielstick diesel engines: a French design licensed for production in this country by Colt Industries, Fairbanks Morse Engine Division.

In addition to the above, a variety of minor auxiliary system foreign components are produced under license for application in our Navy new constuction ship programs.

OCEAN VENTURE ARTICLE

Senator **Stevens**. Admiral Walters, yesterday's Post had an article about a Navy report that was supposedly classified concerning the question of survivability of the aircraft carrier and indicates that this article was classified because of the question of survivability of the aircraft carrier.

Are you familiar with that? The conclusion apparently was of the person who was a retired naval officer, that this was an evaluation of a naval exercise called Ocean Venture, 1981, and the result of that exercise showed that the carriers did not survive.

This isn't a classified hearing but was there such a classification of the results of that exercise?

Admiral **Walters**. I am familiar with the article in the paper.

Senator **Stevens**. I am not asking about that. I can read it in the paper, but was it classified by the Navy?

Admiral **Walters**. As far as I know it was, but not because of the fact there was a statement made regarding the vulnerability of the carrier.

Senator **Stevens**. Then you made the statement, and your colleagues made the statement here this morning that the difference between our planning in terms of naval operations and what we are seeing in the South Atlantic is in fact our battle groups based around an aircraft carrier.

Now, isn't it sort of important to let us know the results of that exercise?

Admiral **Walters**. I am sure it is, and I am positive that if the classification was added it was because of the overall content of the article and not because of a specific reference to vulnerability of the ship.

Senator STEVENS. Well, is it classified to ask as a result of that exercise, did the carriers survive in the exercise?

Admiral WALTERS. I don't think that the assessment was made specifically as to whether carriers survived or any other ship survived in that exercise. I have not seen the formal results of the exercise but I believe that Admiral Train, the fleet commander, did brief this committee on the exercise. I have not seen in any form, official or unofficial, the total results of that exercise.

Senator STEVENS. Admiral Train briefed the Armed Services Committee and not this one, but when we see an example as we have seen here, and my colleague points out to me the economics of it, this is Rudman's economics, one French missile, $30,000, and one British destroyer, $40 million. The French plane, both being utilized by the Argentinans, was 1 mile beyond the range of the ship's defenses, I am told.

Now, if that is the case, it makes the survivability of your air arm absolutely essential to what we are doing, doesn't it?

Admiral WALTERS. I think it is important for you to understand that the ship that was involved is equivalent to one of our FFG-6's, a ship that we have continuously characterized as not a battle group capable ship and one we would not put out on an AAW picket station.

The point is that we operate our forces considerably different than what is being done down there now.

Senator STEVENS. Isn't the key to it our aircraft carriers?

Admiral WALTERS. The key to our forces is an aircraft carrier.

Senator STEVENS. And the allegations made in this study, or the report of this study, that the aircraft carriers did not survive the exercise, if that is the case I think it is something that Congress ought to know.

Admiral WALTERS. I would agree, Mr. Chairman, but I do not know that that is the allegation of that report.

Senator STEVENS. I would very much like to be notified when we could get a briefing of what was the result of that Ocean Venture 1981. I think this committee would now be very interested in it.

Senator RUDMAN. I think, Admiral Walters, if you look at the analysis of our naval strategy versus that of anyone else, and look at the analyses done by naval officers, retired naval officers and intelligence experts, the question really isn't so much whether or not we use that kind of a ship. I understand we do not. But we now have proof for the first time that these precision-guided missiles work.

We were always told that they would work and we now know they do work. Here we have a not terribly modern aircraft delivering two of these missiles, and one hits. The question really is, in terms of what the chairman is asking you this morning and what I think a lot of people are asking, what happens when a large number of aircraft, either land based, as the Soviets have, capable of refueling, or based in some other way, approach a battle group and launch scores of these precision-guided missiles against carriers and other substantial targets?

What we have found in the South Atlantic where these have been used for the first time in modern warfare, is that they work and they work when not particularly employed by a not particularly well-thought-of air force. It causes a lot of people a lot of concern. I am sure you want to respond to that.

Admiral **Walters**. This is not the first time that one of these has been demonstrated.

Senator **Rudman**. I mean, used in combat.

Admiral **Walters**. A ship called the *Eilat* was sunk by an antiship missile in the Arab-Israeli war of 1967. We know those weapons work and we have weapons of our own which are even better.

There is a characteristic tendency to think that we are not going to lose anything in a war. Certainly in war there are going to be casualties. We cannot build anything that is invulnerable.

What we do is to try to build those kinds of forces which will sustain as much combat as we think that we should be able to sustain if they are in areas where we intend to send them. You can generate a scenario in which you can defeat a given force. I don't think anybody in the Navy will deny that; however, we do have systems of our own which will deter an enemy's use of that kind of weapon, and we have defenses which are effective.

Senator **Rudman**. Well, the British are pretty forward in their thinking of ECM and other things and this was one of their latest destroyers. It had some pretty sophisticated equipment onboard, yet two missiles were fired, one hit, and the ship was lost.

The level of expenditure to defeat naval forces may be a lot more than we think.

Senator **Stevens**. That was thought also.

PRIVATE SECTOR OVERHAUL PROGRAM

Let me go to the cost growth and the GAO report on the 1978 to 1980 private sector overhaul program that showed, Admiral Fowler, that there was an average delivery schedule 2 months late and contract growth of $425 million, 50 percent higher than the contract awarded price.

Now, we have an increase in the private overhaul program, don't we, in this budget?

Admiral **Fowler**. Not in the program. What that report deals with is the increase in contract cost.

Senator **Stevens**. I mean, in the budget we have here, your budget request has additional money for the private sector overhaul program?

Admiral **Fowler**. Yes, sir, it does.

Senator **Stevens**. Now, can we reach the assumption then that this budget that is before us could be underpriced by as much as 50 percent; that is, based on that GAO report?

Admiral **Fowler**. You are drawing the wrong conclusion from the GAO report.

What the GAO report says is that when we award a contract for a certain figure, before the overhaul starts, several weeks or months before overhaul starts, and compare that with what the final price is in that contract, there is a substantial increase. That doesn't mean that that increase is not within the amount the Navy estimated the overhaul would cost and what we programed for that overhaul cost.

Senator STEVENS. Do you have a figure of that? What is the difference between the actual cost and the budgeting and what has been your cost overrun? I understand you testified before the other committee that you are going to try to limit this overhaul work package group to 10 percent. Is that the figure we should look at?

You are going to say it will not cost more than 10 percent?

Admiral FOWLER. That is what I am shooting for and, here again, I will put it in perspective. This is not a management control or financial control item. I want to get us in a position where we can determine within 10 percent what work needs to be done on the ship. I think we can do that, just as we have done for the *Saratoga.* We are trying to find better engineering techniques for predicting what is needed, so that we can keep our costs within 10 percent of the budgets.

We are now able to estimate fairly well what both overhauls are going to cost, and when they wind up within that ballpark. But part of that problem is that our budgets are well known to the industry. There is a situation where we may be telegraphing too much information to them.

My goal is dealing specifically with determining what work needs to be done, very much like you would take your automobile in and tell a man you want the brake on one wheel fixed and he calls you up 2 hours later and he says you have to fix all four wheels. You should have been smart enough to determine before you took it in that you really wanted all four wheels done. That doesn't represent a cost increase of several percentage points; it represents the fact you didn't know what you wanted done.

That is what I am shooting for.

Senator STEVENS. Admiral, it may mean that if you have to go to your banker to have four wheels fixed, he is going to tell you to get a bicycle.

Admiral FOWLER. If he calls, you may have to tell him, "I can't afford four wheels; I can only afford one."

Senator STEVENS. Is that decision process built into the Navy's review of this overhaul program?

Admiral FOWLER. Yes, sir. We are looking at the whole decision process, we are looking at everything.

Senator STEVENS. We are going to approve the pay reprograming, but you are going to find me on the ceiling if we get one on the New Jersey.

Admiral FOWLER. That is what you told us last year and I am very mindful of that.

Senator STEVENS. I still can't get over the figure that is going to go to $100 million a year.

Admiral FOWLER. If it happens, I hope I am not underneath you when you come down on top of us.

Senator STEVENS. I keep asking the Navy what it is going to cost to operate this 600-ship Navy, and we haven't gotten that yet. We are getting the costs to build it, but to float it might be another matter.

Since this budget was presented to us, this 1983 budget, the GAO tells us that the Navy has reorganized its overhaul program, putting several ships into 1984. Is that true, and what ships are they? If that is the case, why shouldn't we delete that amount from this budget?

Admiral **Fowler**. I will ask the Admiral Nunneley to address that.

Admiral **Nunneley**. The question concerned the 1983 budget and some overhaul replacements?

Senator **Stevens**. They say they are slipping into 1984 and the GAO report shows slippages in the fiscal year 1984 and beyond, and there is a series of vessels mentioned in their report. Really, I should ask you if you agree with that listing, and is that right, they show a total of $146 million, but with a number deleted from the program entirely, so the total would be, according to the GAO, $221 million that won't take place in 1983.

If that is the case, why can't we reduce that budget by that amount for this year?

Admiral **Nunneley**. There have been some adjustments to the President's 1983 budget for operational and other reasons. We have had to move a ship into 1984, perhaps for workload reasons, for example, and we have substituted a ship from 1984 and moved it forward into 1983 to keep the balance.

I would have to respond specifically as to the ships from the records.

[The information follows:]

SHIP OVERHAUL SCHEDULE

In the fiscal year 1983 Congressional Budget, as submitted, none of the eight ships in the GAO report nor the one ship alleged to have slipped entirely (SSN 610) have, in fact, slipped to fiscal year 1984. While the fiscal year 1983 Congressional Budget was being put together over a period of several months, discussions were held internally as to the number of overhauls to be budgeted in fiscal year 1983, based on operational and funding constraints. The final OSD/Navy decision was to overhaul the 66 ships as presented in the fiscal year 1983 Congressional Budget.

Entirely separate from the above substitutions have been made as I mentioned earlier; the USS *Richard L. Page.* (FFG 5) overhaul was delayed to fiscal year 1984 to allow for one more deployment. *Page's* material condition was judged as excellent for another deployment following extensive work in the main propulsion area. USS *Ainsworth* (FF 1090) overhaul was advanced to fiscal year 1983 based upon condition and operational availability.

Senator **Stevens**. This review shows that slippage into 1984 and beyond include eight vessels, with one that has been deleted entirely, according to the GAO review of your program. Now, all eight ships have slipped from 1983, and one is deleted entirely, but we still have the budget request for that money.

What I am asking, again, is, does that mean that since you are not going to spend that money in 1983—is it true that you are not going to spend that money in 1983?

Admiral **Nunneley**. It is not true. We are going to spend the money in 1983. There have been some substitutions between 1983 and 1984 and some from 1984 to 1983. I would have to compare our figures with the GAO to respond precisely.

Admiral **Fowler**. Those numbers don't sound correct to us, Senator.

Senator **Stevens**. This report is just 2 or 3 days old. I will ask you to review this program for our committee, because of its complexities, and when you have done that give us a report. I would like to know—and we will give you a copy of the report—and I would like to have your comments on that, particularly on the slippage question.

I want to remind you that we have been asked to cut a minimum of $6 billion from this budget and we want to start looking at the places where those cuts will do the least harm to the program. If those are going to slip over to 1984, they are prime targets for being reduced.

Let me twll you—in the budget request here you say you can overhaul the *Nimitz* in 12 months, and I am told the *Enterprise* took 2½ years for the same type of overhaul; is that right?

Admiral **Fowler**. That is correct.

Senator **Stevens**. Do you think you can get it done in 12 months?

Admiral **Fowler**. First of all, the *Enterprise* was built in 1965 and the *Nimitz* was delivered about 4 or 5 years ago. Second, the *Enterprise* has eight reactors and the *Nimitz* has only two. Therein lies a very substantial difference in the degree of difficulty of the overhaul. We are targeting for 12 months but are still working on whether it should be 12 months.

I am putting very tight controls on our people to make it happen within 12 months.

Senator **Stevens**. And we are trying to work with you, and not cut the program in the wrong places. There is going to have to be greater cooperation.

I would like to have a summary for the record as your overhaul program changes and the net funding revision that may be involved as far as the 1983 budget is concerned before we mark up the bill, if you will.

There is no rush on it but I would like to have it before we get around to markup, so that we know where we are. If this nets out to a slippage of funds into 1984, it is much better to slip them in 1984 rather than to cut something in 1983.

So, I urge your cooperation in that regard.

Mr. **Sawyer**. We will be happy to respond when we have had an opportunity to look at the figures.

[The information follows:]

SHIP OVERHAUL SCHEDULE

The fiscal year 1983 Congressional Budget reflects the overhaul of 66 ships. The following change has been effected: The USS *Richard L. Page* (FFG-5) overhaul was delayed to fiscal year 1984 to allow for one more deployment. *Page's* material condition was judged as excellent for another deployment following extensive work in the main propulsion areas. USS *Ainsworth* (FF-1090) overhaul was advanced to fiscal year 1983 based upon condition and operational availability.

NAVAL SUPPLY CENTER INVENTORIES

Senator **Stevens**. I am told that some recent testimony indicates that the six naval supply centers reported losses of over $330 million in fiscal 1981. The Norfolk Supply Center accounted for $174 million of this. What kind of losses are these and what are you doing about it?

Mr. **Sawyer**. Senator, there has been a question with regard to inventories at our supply centers in terms of both overages and outages. We are conducting a massive inventory.

Senator **Stevens**. Are these supplies or what is it?

Mr. **Sawyer**. I assume that what you are referring to has to do with inventory adjustments. Other than that, I know of nothing else. It is something that surfaced about 6 months ago. We have a major task force at work in the Naval Supply Systems Command that is doing a very thorough and comprehensive inventory, and actually those inventories indicate that we had more overages than outages. A complete report will be provided to Navy management and also to OSD management and the Congress when we have competed that exercise.

Senator **Stevens**. Again, I would like to have that before markup, because you have a request in here for additional supplies, and it would seem that if there is some way to correct this problem of losses as they are reported to us, and if they are not losses we would like to know what they were.

Mr. **Sawyer**. We will supply that for the record.

[The information follows:]

Inventory Adjustments

This major inventory effort is scheduled for completion in December 1982; therefore, it will not be possible to provide a report of the results prior to the markup. I can tell you that the overages and underages which result from these inventories occur primarily due to inaccurate recordkeeping at the Navy's naval supply centers rather than from the actual loss or finding of material. The Naval Supply Systems Command has identified factors leading to this inaccurate recordkeeping and has developed and implemented a detailed management action program in order to correct the situation.

The money requested in the budget for supplies is not being used in connection with inventory records adjustments. Rather, it is used to repay the inventory account when supplies are taken from the inventory in order to support Navy operations. With this repayment to the inventory account, it is then possible to replenish the inventory with more of the supplies drawn from it so they are again available for issue to requiring activities. Thus, while there may be increases or decreases to the amount of material shown on the inventory records, this does not offset the budgetary requirement for operating funds to buy operational supplies from the inventory.

15 CARRIER BATTLE GROUPS

Senator **Stevens**. We have a problem here about the carriers. If we put up the money for the carriers, we still won't have 15 deployable carriers until the early 1990's, because of the retirement of *Midway* and *Coral Sea*.

Now, the goal is to have 15 carrier groups—is that the current Navy goal?

Admiral **Walters**. Yes.

Senator **Stevens**. Does that mean that we are going to see additional carriers requested in the timeframe between now and the 1990's?

Admiral **Walters**. Yes.

Senator **Stevens**. How many?

Admiral **Walters**. We had long lead funding for one in the 5-year shipbuilding program that is before you now, in the last year of the program.

Senator **Stevens**. There is one more, and it would seem that you would need more than 1 to get to 15. If we fund the two, how many will that give you, including the *Midway* and the *Coral Sea*?

Admiral **Walters**. We will have 14, including *Midway* and *Coral Sea*, and then when they are replaced we will still be at 14.

You will recall that the proposal that was made originally, Senator, the way we got to the 15 battle groups in some reasonable time period was that we asked for the reactivation of one of the 27C-class carriers; that is the way you achieve the 15-carrier force within a reasonable time period.

Senator **Stevens**. The copy of the 5-year program that I have shows only two aircraft carriers, and that is the two that are before us now. If there is a third one, we have some problem about seeing how we are going to reach the 15-carrier battle-group target. I don't argue about the target; I am just saying that I don't know how we are going to do it unless we have an additional request in there.

Of course, that leads us to the next question. If we are going to have to have a lot more carriers and destroyers, because I understand the battle-group requires an Aegis cruiser, destroyers and submarines, and we don't see the requests for the cruisers to accompany the 15 aircraft carriers.

Admiral **Walters**. Senator, on vu-graph No. 7, in my statement for the record, the 5-year shipbuilding program is displayed you will notice that there is $554.9 million in fiscal year 1987 for long lead for another CVN. That is what I referred to.

Senator **Stevens**. You are talking about your testimony?

Admiral **Walters**. Yes, sir.

"NEW JERSEY" REACTIVATION

Senator **Andrews**. When the battleship *New Jersey* went from Washington to Long Beach for refurbishing, were Navy ships displaced from these yards so the battleship work could commence?

Admiral **Fowler**. Yes, there were five ships that were pulled out of Long Beach and they were placed in private shipyards, and the last of those is the *Downs,* which we will be advertising very shortly on the west coast.

Senator **Andrews**. What was the cost difference in displacing these regular fleet ships to private yards for overhaul?

Admiral **Fowler**. I do not have those numbers, Senator, immediately available to me. If I may, I would like to supply them for the record.

[The information follows:]

The ships involved here have not been completed. Until these ships are complete it will not be possible to get the cost return data which you are requesting.

Senator **Andrews**. Well, was it cost effective, this move, that it cost less to move them to private yards than to do them in our own yards?

Admiral **Fowler**. There is not a great difference in the number and it is basically a wash. Our programing numbers were not changed. None of the ships have been completed and we won't be able to get return costs until completion. I really can't answer your question. I will try.

Senator **Andrews**. If you could find out for the record and give us as good a set of figures as you can, because actually if we are running additional costs in the displaced regular naval ships that would have been repaired in that shipyard, those additional costs should be allocated.

Admiral **Fowler**. Not with the tight control that Senator Stevens has got on us for the $326 million. I hope we don't have to levy any additional costs.

Senator **Andrews**. I don't know why you shouldn't. This subcommittee was against refurbishing those old vessels and you have them now, and I guess you are going to drag them out. We expect it is going to cost us a lot more than $300 million, and I would assume any type of reasonable cost accounting should include the additional cost of refurbishing these five ships which would be refurbished in that Navy yard if they weren't sent out to private yards.

Admiral **Walters**. If I could respond to that, it is my type of ships that I represent, the surface ships, that are constantly displaced out of naval shipyards because of other work. This is something that occurs all the time. We have certain work that is considered to be higher priority, or better achieved, in a naval shipyard. When we do it, the surface force ships are displaced to the private sector.

Generally I am comfortable with the work that is done in the private sector and I think the prices are comparable, and generally the schedules are met equally as well.

Senator **Andrews**. The thing this committee would like to know is, if it can be done in the private sector cheaper than in the Navy shipyards, that is where we should do more of it.

Mr. **Sawyer**. There is no indication that it is significantly cheaper or more expensive, and a lot depends upon a specific job and a specific yard. For these more complex ships that are going to the private sector, we are using a two-step type of procurement, for emphasizing the quality of performance. But it is very doubtful, from what Admiral Walters said, that there is any significant cost differential either way.

OVERHAUL COST OVERRUNS

Senator **Andrews**. I understand there has been some 80 percent overrun on ships done for the Navy in San Diego. Are we going to expect this kind of gross miscalculation of cost to continue?

Mr. **Sawyer**. The cost overun is an incorrect interpretation. The increases in these overhauls, as was discussed about San Diego, are due to the increase in work from the time that contract is originally let until the contract is completed. Much of that is because we in the overhaul business—you cannot always determine what work is required until you open and inspect a piece of machinery.

When we let a contract we say open and inspect it and then we authorize the work to be done. That is included in that 80 percent. The 80 percent, in my view, is excessive and we are trying to bring that down.

Senator **Andrews**. I understand it is so bad down there you filed some criminal cases in the case of the cost overruns.

Mr. **Sawyer**. It was not in the cost overruns. There were people who were saying they had welders certified in a certain way, and it turned out that they were not certified. My recollection is that that case occurred some time back. When we find fraud, waste, and abuse going on we call in the investigators and we get the facts. In that case we found facts and the FBI got into the case. The people were prosecuted, and within the last month the sentences were handed down. Normally that takes about 3 years.

Senator **Andrews**. Could you provide that for the record so we would have that information?

[The information follows:]

Federal Prosecution of Contractors

Three officials of Precision Welding and Stress Relieving, Inc., National City, California, and one official of American Testing Institute, San Diego, were indicted in 1981 for conspiracy to defraud the United States by circumventing established Department of Defense procedures for obtaining sound welds on ships being repaired pursuant to contracts with the U.S. Navy, and for making and using false statements and representations of material facts in connection with both providing welding services and providing certifications that welders and test welds had been properly tested. The offenses occurred between January 1978 and February 1981, while Precision Welding was performing welding services on Navy ship repair contracts, both as a prime contractor and a subcontractor.

The four individuals were tried in the U.S. District Court, San Diego, and found guilty on March 4, 1982, of one count of conspiracy and 21 counts of making and using false statements. On April 20, 1982, the three Precision Welding officials were sentenced to imprisonment ranging from one year to 18 months and fines ranging from $8,000 to $16,000. The American Testing Institute official was sentenced to three years of supervised probation and a fine of $3,000.

SURFACE SHIP VULNERABILITY

I have to go up before the Budget Committee, Mr. Chairman, but I am really appalled at what happened last night. We have talked about the need of a surface Navy for years and we finally find that a 15-year-old missile the first time it has ever been launched at a surface ship takes it out with one hit—and a modern surface ship.

Are we going down the wrong line, or what? I have been told that all of this was a Santa Claus story, or belief in the tooth fairy or whatever else, that a modern ship could take three or four hits and survive. Bang, bang; you get one, and I understand you told the committee that the airplane was conveniently out of range of the ship. That is fine, and if you can buy these missiles and take out surface ships, maybe we are barking up the wrong tree.

Is there anything other than the fact that one missile, one hit, took out a modern ship? Isn't that the first time anybody has shot a missile at a surface ship in this type of an operation?

I understand, or I have always thought, when we were down at Vietnam, sailing up and down offshore, that the Russians didn't provide Vietnam with these kinds of missiles because they wanted to sucker us around, to stay there longer, because it was bleeding us dry.

Now, all of a sudden, the Argentine Navy takes an antique navy missile and sinks one ship. I would think that Billy Mitchell is here all over again.

Admiral **Walters**. I don't think [illegible] Senator. I find it difficult to explain why one warhead resulted [illegible] the loss of that ship. I don't find it understandable. It was not one of our ships and we build our ships, I think, as well or better. We are sometimes accused of conservatism, but one thing we do build is good ships.

Senator **Andrews**. You are saying this British ship was not a good ship?

Admiral **Walters**. I am just saying that they are built to different standards than ours, and they have different fire-fighting arrangements and different damage-control arrangements, and different ways in which they control materials on their ships than we do.

I can't explain why that kind of a warhead would have sunk a ship of that kind.

Senator **Andrews**. Neither can I, but it did, and it is the first time one of them was fired at a modern-day naval ship with that destruction.

You know that and I know that, and I would appreciate it if you could provide for the record in a basic briefing, Mr. Chairman, a little bit more information when you have had time to assimilate it.

What you are saying is exactly what we have been led—those of serving in Congress all of these years—have been led to believe, that a modern-day surface ship can absorb four or five of these hits and survive. Bang, bang; one comes in and down it goes.

This certainly blows into a cocked hat all of the naval theory I have been exposed to in the years I have been in Congress. I think it is important enough to get a little more information.

Senator **Stevens**. My good friend doesn't realize he is playing the same tune for the third time this morning.

Senator **Andrews**. That is why I wanted to stop it right now.

Senator **Stevens**. I haven't seen him since last week, but I think we are going to bump into these questions throughout the whole consideration of this bill now.

I really think it is more of an intense reaction than you can believe as far as the shipbuilding program is concerned. I do believe that you are going to have to give us some information, seriously, some information as to what happened and an analysis, to see if the same thing could have happened to one of our destroyers.

Senator **Andrews**. The reason I brought up the question was not because I didn't think it had been brought up, but they told me that there was no satisfactory answer given. That is why I suggest you ought to provide a little bit more information for the committee, as soon as you possibly can, because we think we need it.

Admiral **Walters**. That is correct. As I say, I don't have a satisfactory answer, but I got the information at the same time you all did and I haven't had a chance to get any additional information.

Senator **Stevens**. You said the *New Jersey* could withstand cruise missile attacks, and this is just a simple, little old $30,000 missile.

Admiral **Walters**. There is absolutely no comparison between the *New Jersey* and the *Sheffield*.

Senator **Stevens**. There is no comparison between a cruise missile and that missile that was fired at that British destroyer, either.

Admiral **Walters**. That is a cruise missile, and it is not an antiquated missile. The Exocet is recognized as a very effective antiship missile in the world's arsenal of weapons. I wouldn't degrade it at all. It is a very effective weapon.

Senator **Rudman**. I guess we can agree with that.

Admiral **Walters**. Until we have more information to go on it is dangerous to speculate. If we lose an aircraft, would we simply decide we don't want to build any more airplanes? Of course not.

Senator **Rudman**. Nobody is even proposing that this morning. No one is saying we are going to abandon a shipbuilding program because the British lost a destroyer in the South Atlantic.

What we are saying, however, is that this provides a vivid example in modern-day terms of the use of modern weapons against a modern naval vessel of virtual near ability that we were disposed to think did not exist. We all expect that there will be losses sustained in any action.

I think what the Chairman, and my friend from North Dakota have said, and what I say to you now, is that we would like in a classified briefing, if that is necessary, a little information on the missile, on the *Sheffield,* and on the ranges involved. This is the kind of information that we would like to get specifically.

It might be very, very helpful. We understand the difference between these various kinds of vessels, but I think you would have to agree that your reaction as an admiral of the U.S. Navy was surprise and shock when you heard about it. It was my reaction, and I think we would like a little bit more information.

Admiral **Fowler**. I think we owe you that and we will provide it as soon as we can.

Senator **Stevens**. I want to go on with the Trident, but go ahead.

Mr. **Sawyer**. We have been criticized with regard to our emphasis on more high-mix vessels than low mix. Really, the *Sheffield* represents, as Admiral Walters has pointed out, it is the reputation of our FFG's which we would put in the low-mix category. Our current destroyers are in the 8,000- to 9,000-ton vicinity, considerably larger. In addition, we are concentrating on the very expensive area, and I mentioned the *Saratoga* and the *Ticonderoga,* which went out today, to be able to handle the kinds of saturation attacks to which you were referring.

Unfortunately, to develop ships that can go into harm's way and be survivable, particularly in mass attack, is a very expensive proposition and one of the reasons we are coming up with a $19 billion program.

Admiral Walters has referred to the importance of regional airpower, and it is a good example, if they are outside of 20 miles. There is a cap out there and if there were ships, a battlegroup with extended-range missiles, that type of attack probably would never have occurred.

In addition, I think we have better self-protective weapons on our big ships, called CIWS, a pretty effective system; whereas, the British ship does not have that.

Finally, I would like to point out that the day before the British submarine sank a cruiser with two World War II steam torpedoes.

Senator **Stevens**. It was a World War I cruiser.

Mr. **Sawyer**. It was a lot larger ship.

Senator **Stevens**. Do you have that system on the battleships?

Admiral **Walters**. The CIWS, yes.

Mr. **Sawyer**. We were criticized because we are only putting a 20-millimeter gun on the battleship.

Senator **Stevens**. Even with all of the steaming that I have been doing and I think others about the cost of the battleship, if we do have proof that the systems are not sufficient to meet the goal of protecting a platform, I assume we will hear about it and there will be some requests made.

Senator **Rudman**. I want to raise another issue here. If you want to talk about level of armament, last year I went up to the Bath Iron Works to take part in a commission exercise for one of the FFG's that was built up there, the U.S.S. *Flatley*, and I was rather shocked. Frankly some of the Navy personnel there joined me in complaining about the low level of armament on that particular vessel.

Here is a very sophisticated vessel designed for a particular purpose. I understand it will be used as a picket ship. But with the sophistication and compactness of some of our surface-to-air missiles, it just seemed to this observer that it was a very underarmed ship.

You had a tremendous propulsion plant, and excellent ship with all kinds of electronic gear, and essentially two weapon systems. That was all. It had one gun and I don't remember the caliber of that, and one antiaircraft device. The people on the ship said, that they were unhappy with the level of armament.

Are we looking at modifying some of our FFG's to make sure they have the latest in armament should they get into a situation where they want to reach out a distance?

Mr. **Sawyer**. I think that they have a better system, and in addition they have the Harpoon, and we are retrofitting and installing CIW's on the ships.

Admiral **Walters**. I was with you at that time and I recall the conversation. We are installing them as a post-construction thing and in the new ships as part of the new construction program.

Senator **Rudman**. I think that is a very constructive step because they certainly were underarmed.

Senator **Stevens**. Gentlemen, we can only sit until 11:30 today, but the Trident gives me some problems.

TRIDENT DELIVERY SCHEDULES

Last year's 5-year plan had only one Trident for 1983, and this year we have got a request for two Tridents. Now according to our GAO review of the budget, the delivery schedule at Electric Boat are continuing to be late and yet there seems to be some real optimism in this budget that indicates that you are going to have improvement, as much as 20 months on ship deliveries from the Electric Boat operation.

We don't really understand or I don't understand the confidence that has been expressed in this budget in terms of the delivery schedules there.

I understand that you are going to get one Trident and six attack subs in 1981, and that the GAO tells us in order to achieve that, the delivery of those on schedule, 16 others were delayed.

Is that right?

Mr. **Sawyer**. That is not right at all. I have read over the GAO report at some length. I believe the GAO said, and we tend to agree, was that by putting the large amount of emphasis on the seven ships which were delivered in 1981, the shipyard had diverted manpower from ships that were further downstream and had put the schedule of some of the out year ships in some jeopardy.

But actually with regard to the ships that are coming along this year, all of the ships that E-B is scheduled to deliver this year—I believe there are two attack submarines and the second Trident—will in fact be delivered on schedule and perhaps even a little ahead of schedule.

Senator **Stevens**. They say that is right, but at the expense of other subs under construction there.

Mr. **Sawyer**. Well, I think they are talking about the seven, and of course that is last year's deliveries. I was at the shipyard early this week and we spent several hours going over the individual projections, both in the manning area and by ship, and also the schedules of the ships.

ACCELERATION OF TRIDENT

Senator **Stevens**. Why is it necessary for us to accelerate a Trident in this manner? Last year we had just one Trident and this year in the 1983 budget we have two.

Mr. **Sawyer**. Last year we had no Trident in the budget.

Senator **Stevens**. I am talking about last year's 5-year program showed one Trident in 1983 and this year's budget shows two Tridents for 1983.

Admiral **Walters**. The reason for that is that we have had a strong feeling all along that we should continue to build the Trident submarines at least one a year. Because we did not get the one the previous year we felt to keep the program going for strategic purposes, we needed to include two in this year's budget. Thus it was a production as well as a strategic decision.

Senator **Stevens**. I am told the difference between having that second Trident in this budget and having it in 1984 where it was before, is really ony 4 months in terms of delivery schedule, is that right?

Admiral **Fowler**. That is correct.

Senator **Stevens**. Why are we increasing this year's budget that much for 4 months in terms of delivery schedule?

Admiral **Fowler**. You may recall early last year in my first testimony before the Congress I predicted a very substantial slide in submarine programs. Then as we went through the April timeframe, the company adjusted their schedules and by July or so we were in complete agreement on schedules.

During the fall of 1981 (Tridents and early 1982 SSN 688's) we renegotiated contracts so all of our contract delivery dates, schedules, contract clauses and all of our business relationships are current and up to date and everything is pretty well on schedule.

In December and January of this year, as I looked at that schedule, I got worried about their delivery of the Trident. The 688 was pretty much on schedule. We are concerned about their work force to deliver the sixth, seventh, eighth and ninth Tridents. In my early testimony in March of this year I voiced that concern. Since then the company has reacted to that and they have said they are going to hire 1,390 additional people, taking into account their attrition, there would be about a 940-man improvement in trade personnel at Groton.

We have talked with Electric Boat about those Tridents in the out-years, and I would say at this point they are essentially on schedule with what we are presently showing as our delivery dates. They are taking effective action to deliver both the 688's and Trident submarine.

Because of the concern that we brought up last year with the problems at Electric Boat, the Congress did not appropriate or authorize the funds for the one Trident submarine that we had in the 1982 program. That would have been the 10th Trident submarine. The Congress did, however, put in additional long leadtime material to compensate for the fact that the 1982 ship one was moved to 1983.

There are now two Tridents, the 10th and 11th, programed in the 1983 budget, because of the action last year to slip the one from 1982 to 1983. When we avoided the contract for the 9th Trident, we not only contracted for the 9th ship, but we got options for the 10th and 11th, which we knew were going to be in the 1983 program. Those options expire in February, so if we exercise those options we will execute them according to the program.

If you do not appropriate or authorize the second fiscal year 1983 Trident, then it slips over into 1984 and that slip really amounts to, when you look at how they all fit together, about a 4-month slip as a result of being in the 1984 program.

Senator STEVENS. Is it true that in response to Senator Kasten's question and the authorizing committee there was indication that that four months would cost $334 million?

Admiral FOWLER. It depends upon how you want to identify costs. The actual cost is about $225 million. The difference in end cost and the TOA amount, when you consider escalation and other factors that ultimately determine how we estimate programs, would be on the order of $341 million.

Senator STEVENS. How is it you entered into an option for the Trident 10th and 11th for pushing the 11th to fiscal 1983, when in the 5-year program we were basing our allocations, showed only one?

Admiral FOWLER. We awarded the 9th and we solicited for Trident 10 after we knew the committee had taken action. We did not do that in advance of any action by the Congress.

Senator STEVENS. You mean these are authorized already?

Admiral FOWLER. No, sir, they are not authorized, but we often get options for future ships when we know we have a 5-year plan. For instance, inthe FFG's we contracted for the 1981 program, and had options for the 1982 and 1983 programs.

Senator STEVENS. I don't mind that, but the program you are working on, the same program I had it on showed one Trident until the last few months for 1983. You took an option for two.

Admiral FOWLER. Hull No. 11 was always in 1983 and Hull No. 10 was in 1982 last year. The Congress, because of the problems of E-B, did not authorize or appropriate the 10th Trident, but did put in extra long lead time material for No. 10 in 1983.

Senator **Stevens**. I see you look at it a different way. You had one in 1982 and 1983 and we slipped 1982 to 1983 so you are assuming we are going to keep it and not slip it to 1984?

Admiral **Fowler**. At one time we were talking about a strategic submarine program of one and one-half ships a year; we are down to one a year.

Senator **Stevens**. You weren't borrowing money at 15 percent, either. I don't know how we are going to get this thing back in balance. If we did two Tridents this year, how many is in this program for next year?

Admiral **Fowler**. Just one.

Mr. **Sawyer**. This really is a way of levelizing out to one a year. I would like to make one point in any review of the shipyard's work. I think that these problems up at E–B are really well behind us. I think the new general manager and his staff are working very hard to catch up. There was an open and frank discussion of detail on the matter, and with regard to Trident nine we had actually begun discussions with them about accelerating that ship by up to 6 months.

SUBMARINE COSTS AT ELECTRIC BOAT

Senator **Stevens**. Here is my problem: The GAO tells us that the cost growth and delivery in submarines at Electric Boat are likely to continue. We have a problem of $16 million. We say that are not going to continue as far as Tridents are concerned and we appropriate the money. If the delays continue, the dollars that we are going to fight for within this limited budget, could have been used for something else and if kept on schedule might be used for Tridents if they are correct that the delay is going to continue.

The moneys aren't going to be expended within the timeframe we are talking about. So that in effect we will have achieved a double reduction if you put money into a boat that is not going to be delivered and the expenditures cannot be real time expenditures as far as this budget is concerned.

Mr. **Sawyer**. I understand that, and sympathize totally. It is a very important program, as we both know, and today simply represents, in my mind, the most survivable leg of the Triad. It is a fine ship, and it is a ship which will carry out its mission 100 percent. Actually, it has exceeded its specifications in many areas.

It is a difficult ship to build, of course, and the first one was a tough one. But the point is that that shipyard is doing everything that it possibly can to get itself back on schedule and we are working with them.

I feel more confident than I ever have since assuming my present position. I think we can deliver these Tridents on schedule. In fact on the Trident 9 I think we can accelerate that schedule. The fact that they have two in the backlog helps them with regard to that stable work force. When a contractor has the backlog, and he can plan and levelize his work force accordingly, we will get a better job and we will get it a lot sooner.

Senator **Stevens**. You are going to lose something, either a carrier or Trident in order for us to keep within this limit put on this committee. I assume that the authorizing committees are going to carry forward and they authorize all of them.

We are going to have to decide which one is not going to be built. I would say that we are going to need some hard figures. Are the savings going to be greater if we slip the carrier or if we slip the Trident? That is real savings, and not just the impact on this year, but over all savings in the program.

What are you going to save greater money on by building two carriers at once or building two Tridents at once?

Mr. **SAWYER**. It is a question of whether I want to divorce my wife or divorce my child. The numbers would indicate of course that the carrier savings are larger.

Senator **STEVENS**. And apparently they are more achievable to me, in view of the backlog at Electric Boat anyway.

Mr. **SAWYER**. We are looking at a way in the out-years, and the GAO is focusing on the mid-years. I would say the arguments are about the same in both cases.

Senator **STEVENS**. Do you have any other questions? We have just about 7 minutes left.

"MISSOURI" REACTIVATION

We have a request for $94 million for a third battleship and the cost estimate is $470 million. That is a class C estimate I am told. Is that right?

Admiral **FOWLER**. Yes.

Senator **STEVENS**. It is more reliable than the *Missouri* and the *New York* estimates were?

Admiral **FOWLER**. We are gaining experience all of the while on these.

Senator **STEVENS**. You are right. Pardon me, I think I misspoke there.

Admiral **FOWLER**. We are getter better are what we are going to do.

Senator **STEVENS**. Well, is the conclusion that the *Missouri* is going to be easier to reactivate than the other two? It seems to be. I thought it was to be the hardest and was put over to last?

Admiral **FOWLER**. The *New Jersey* was the easiest because it had been activated during Korea and Vietnam, and there had been some modernization work already done. I am not sure I would characterize the degree of difficulty, one or the other as being more easy or more difficult.

Senator **STEVENS**. How many of these are we going to float now? Is this the last one?

Admiral **WALTERS**. We have planned to reactivate all four of them.

Senator **STEVENS**. It is going to cost us $100 million a year for steaming costs for one of them?

Admiral **WALTERS**. I don't recall the operating costs. We will provide the operating cost for the record if you desire.

Senator **STEVENS**. I would like to have that information.

[The information follows:]

BATTLESHIP OPERATING COSTS

The annual operating costs of an *Iowa*-class battleship, including personnel costs, is estimated to be approximately $100 million fiscal year dollars. For comparison, similar costs for a conventionally powered aircraft carrier and its embarked air wing approximate $350 million.

BATTLESHIP OPERATING COSTS

Senator STEVENS. What is it going to cost to operate each one of these?

Admiral WALTERS. I don't have that.

Senator STEVENS. I am not talking about recommssion, just the operating costs.

Admiral WALTERS. The operating costs.

Senator STEVENS. In terms of figures that are given to us for the battleship surface action group, it was $100 million. That was for the battleship and not for the others, just the battleship. It was in March when we asked the question.

It shows the total cost of operating the battle group would be $300 million, and for each one of them. And we are to have four?

Admiral WALTERS. Yes.

Senator STEVENS. That is annual expense.

Admiral WALTERS. I would like to check those figures.

Senator STEVENS. I hope you do, because one of these days we are going to say, "Enough is enough." We have lost this battle twice, or three times now, and maybe someone will start listening to me. You are going to have some nice missile platforms out there, but not any money left to steam these other 596 ships, if you are going to spend $300 million of your annual operating costs on four of them.

I really think someone ought to look at the hole card on this one and the next one. That is a tremendous amount of money.

Gentlemen, I appreciate your answers to our questions, and this committee needs your report to support the request on the floor. That is where we are getting some real exercise.

SUBMITTED QUESTIONS

We are going to submit to you some detailed questions and we would appreciate your answers.

[The following questions were not asked at the hearing, but were submitted to the Department for response subsequent to the hearing:]

ADDITIONAL COMMITTEE QUESTIONS

NUCLEAR SHIPS PROGRAM

QUESTION: The composition of the Navy's ship construction and repair program also reveals a concentration of nuclear shipbuilding, repair, and overhaul. With the limited number of vendors and public shipyards competent to handle nuclear work, can the Navy have any confidence in its work schedules in this area?

ANSWER: The Navy acknowledges that the nuclear program for shipbuilding, repair and overhaul is large and requires highly skilled workers in the shipyards and at nuclear component supplier facilities. Near term planning schedules take into account the complexity and manpower requirements of the nuclear program measured against the available manpower and facilities to perform the work. The Navy is confident that near term schedules, taking into account existing planned improvement efforts (i.e. Electric Boat's plan to hire additional employees to support their SSN and SSBN new construction programs), are realistic.

For the long term, FY85 and beyond, the Navy expects some adjustments in workload and augmentation of the workforce to meet out year industrial capacity requirements given the projected overhaul, repair and new construction programs.

Congressional authorization and funding of the Navy's new construction program is required to provide the future workload which, in turn, provides the incentives for Navy and industry planning for needed production base expansions and improvements. A steady level of annual authorization is also essential to reach long term production efficiencies.

LONG-TERM COSTS 600 SHIP NAVY

QUESTION: Has the Defense Department really analyzed the long-term costs of building, operating and maintaining a modernized 600-ship Navy? What are the annual projected costs for the rest of the century?

ANSWER: Yes, the Navy extensively analyzes the long-term costs of building, operating and maintaining a modernized "600-ship" Navy. The Extended Planning Annex (EPA) to the Program Objectives Memorandum (POM), required annually by OSD, examines programmed force costs and affordability issues, under assumptions about projected growth rates for the the POM and the period ten years beyond the Five-Year Plan; i.e., for FY 1983, that would be through FY 1997.

The Extended Planning Annex for POM-83 indicated that, assuming a sustained annual rate of real funding growth of 7.5% in each of the five POM-83 years, the "600-ship Navy" could essentially be bought in the POM years (although not all delivered during the POM years), and maintained, sustained, and modernized in the EPA years at nearly level funding, with annual TOA in the EPA years in the neighborhood of 100 billion FY83 constant budget dollars.

Navy use of commercial contracting procedures

QUESTION: GAO thinks Navy overhaul contracting is too rigid. It says demonstrated commercial practices yielding greater efficiency are not being used very extensively, post analysis of ship overhauls is being scrapped, and suggestions from the ship repair industry are ignored. Secretary Sawyer, given your experience in this area in the commercial sector, what is your assessment of GAO's contentions?

ANSWER: In NAVSEA's increased use of Requests for Proposals (RFP), multi-ship contracting and other innovative contracting techniques, the Navy has demonstrated willingness to utilize any contracting practices which produce improved results. Except with regard to port engineers which are addressed elsewhere, the Navy is unaware of any commercial practices which yield greater efficiency. Likewise, by establishing periodic forums between COMNAVSEA and several of his Deputy Commanders and various industry groups, a frank and open dialogue has been established between the Navy and the shipbuilding and ship overhaul industry. Suggestions have been carefully considered, actively explored, and expeditiously implemented when feasible.

SHIP ALTERATION SLIPPAGES

QUESTION: GAO and Naval Audit Service studies indicate the Navy deferred 35 percent of funded ship alterations planned in FY 1980. What became of the unused material? What was the amount of these sunk costs?

ANSWER: The Fleet Modernization Program is a highly complex and dynamic program designed to meet ever changing operational requirements and expanding enemy threats. It involves over 2200 ALTs per year, over 200 ships and requires the dedicated planning, procurement and installation efforts of thousands of personnel. While a number of alterations are in fact deferred every year for various reasons an equal number of high priority alterations are added to meet these changing requirements. Unused material from deferred alterations is not retained for long periods of time. Most deferrals are of short duration and material is either retained for use on the original ship or used in the near term for accomplishment on another ship. Alteration sunk costs are associated with non-transferable design and materials. Since most design and materials are transferable such costs are small for a program of this size. Although exact figures are not available, it is estimated that non-recoverable costs amount to $5-7 million annually which is less than 1 percent of the total ship modernization program.

QUESTION: GAO has learned that the material procured for these deferred alterations will ultimately be installed in 1985-1987. Is it possible that this material will be obsolete by this time?

ANSWER: The fiscal year 83 Fleet Modernization Program (FMP) will support installation of procured materials as scheduled without carryovers into 1985 to 1987. The majority of alterations being deferred to meet program reductions are labor intensive with short lead time material requirements. Deferring these type alterations not only prevents stockpiling of material but also allows reprogramming on short notice if funds become available. It should also be noted that alteration material does not become obsolete. The FMP contains alterations which provide weapons system upgrades, reliability and maintainability fixes and other installations which are required now and will continue to be required until the entire fleet or class is backfitted. Even under ideal conditions it takes several years to complete installation of a given alteration due primarily to extended overhaul intervals (84 months in SSN 637). Accordingly, alterations are not developed unless long term effectiveness is assured. In most cases deferred alteration material is used in the near term either on the original ship or to support accomplishment of the same alteration on another ship.

QUESTION: Since Navy has historically had problems installing material planned for alterations, what would be lost to the process if Congress cut a portion of the procurement for alteration material.

ANSWER: The Fleet Modernization Program is a large, complex program which is fulfilling a vital need to keep our Fleet updated and ready to meet the changing threat. In the past there have been problems accomplishing all scheduled alterations; however, significant progress has been made in correcting these problems and installation progress has been significant. Long lead time material must be procurred 1 to 3 years in advance of installation. Hence, material procurement and O&MN installation in the outyears must be closely linked. Cutting a portion of the procurement of alteration material would commit the Navy now to non-accomplishment of future urgently needed weapons and combat system upgrades, plus safety and reliability alterations.

USS NIMITZ TWELVE-MONTH OVERHAUL

QUESTION: The budget request assumes that the overhaul of the carrier NIMITZ will be accomplished in 12 months. It took nearly 2 1/2 years to complete the overhaul of the carrier ENTERPRISE. Is this budget assumption realistic?

ANSWER: Since submission of the FY 83 Budget and after completion of more detailed work package reviews by the planning contractor, Newport News Shipbuilding and Drydock Co., and the Navy, NIMITZ overhaul has been scheduled for 15 months. At this stage of work package development, some 13 months before overhaul start, all known requirements can be accommodated in that duration.

In comparison with the USS ENTERPRISE complex overhaul, there is much less work planned for the USS NIMITZ since the ship will be only eight years old. While Newport News has extensive experience with the two reactor NIMITZ Class aircraft carriers, Puget Sound had never before overhauled a nuclear ship as large and as complex as the ENTERPRISE. The twenty-two year old ENTERPRISE is the first nuclear carrier, built with the technology of the 1950's and is the only ship with eight reactors. During portions of the ENTERPRISE overhaul, Puget Sound was also overhauling other nuclear ships which contained a total of eight additional reactors. These 16 reactors represented the largest number of naval reactors ever in one shipyard at one time. Also, as is common during overhauls of any 20 year old ship, the need for some additional unforeseen work was identified. The complexity of the ENTERPRISE propulsion plant, the shipyard's lack of previous experience with this one-of-a-kind, eight reactor ship, the heavy shipyard workload, and some work growth, combined to require much more time for the ENTERPRISE overhaul than should be needed for the NIMITZ.

Supply Operations

QUESTION: Recent public testimony indicates that the six Naval Supply Centers have recorded losses of over $330 million in FY 1981. The Norfolk Naval Supply Center alone accounted for $174 million of the projected loss. What actions are being taken to correct this problem?

ANSWER: The first step to achieving inventory accuracy and an acceptable steady state level of inventory adjustments is to establish a one-time baseline of accurate inventory records. This is being done under a large scale physical (count) program directed by Secretary of the Navy Lehman and is now in progress at the naval supply centers. The program began in January 1982 and will be completed by February 1983. These inventory actions are expected, of course, to increase inventory adjustments in 1982. At the same time, a management program to correct the longer standing problems that generate the inventory adjustments is required to prevent recurrence of large adjustments subsequent to 1982. A very broad range of actions is being taken. These fall into three general categories: Management Priorities and Accountability, Computer Systems and Resources. Action planned in each category are discussed below.

MANAGEMENT PRIORITIES AND ACCOUNTABILITY

The Commander, Naval Supply Systems Command (NAVSUP) has established inventory accuracy as the Command's #1 improvement priority. Sixty-three specific management actions have been identified, such as:

- Balance staffing shortfalls.
- Reorganize NAVSUP Headquarters at the flag officer level to permanently establish command advocacy and responsibility for inventory and systems integrity.
- Establish inventory accuracy as a mandatory item for evaluation in the fitness reports of responsible supply center officers.
- Establish stringent physical security measures to protect material and reduce both the incentive and the opportunity for theft.
- Establish a dynamic training program for working level physical inventory personnel.
- Establish the physical inventory program as a special interest item for all naval Inspector Generals.

COMPUTER SYSTEMS

The computerized systems in use at the supply centers (as well as at the major air stations and overseas depots) are early second generation technology (1960's) now obsolete. The result is great complexity for the associated manual processes and inability to cope accurately with the volume of work required. Current replacement plans will be accelerted by at least several years from the current 1990 implementation date.

RESOURCES

An extensive data study has been conducted to compare staffing productivity and performance among Navy, Army, Air Force and Defense Logistics Agency supply stock points. Tentative results show naval supply center staffing per work unit is far less -- by an order of magnitude. When compared on an equivalent throughput, the other services/DLA devote on the order of one and a half to three times more people to receiving, storage, rewarehousing, issuing, inventory, quality control and training than does the Navy. The study is now being audited to ensure accuracy. Meanwhile, additional personnel and funds are being provided from within Navy on an incremental basis as experience is gained in the special program now underway.

Supply Operations

QUESTION: The Navy request includes an additional $55 million for supply operations. In view of the recent supply management problems, why shouldn't Congress insist that the Department find this amount of "lost" equipment before increasing funds to buy more?

ANSWER: The additional funds are not being requested to buy more material for the supply system but to provide for successful operation of many facets of the Navy supply system. Additional funds will, among other things, help to preclude inventory losses in the future.

AIRCRAFT CARRIERS

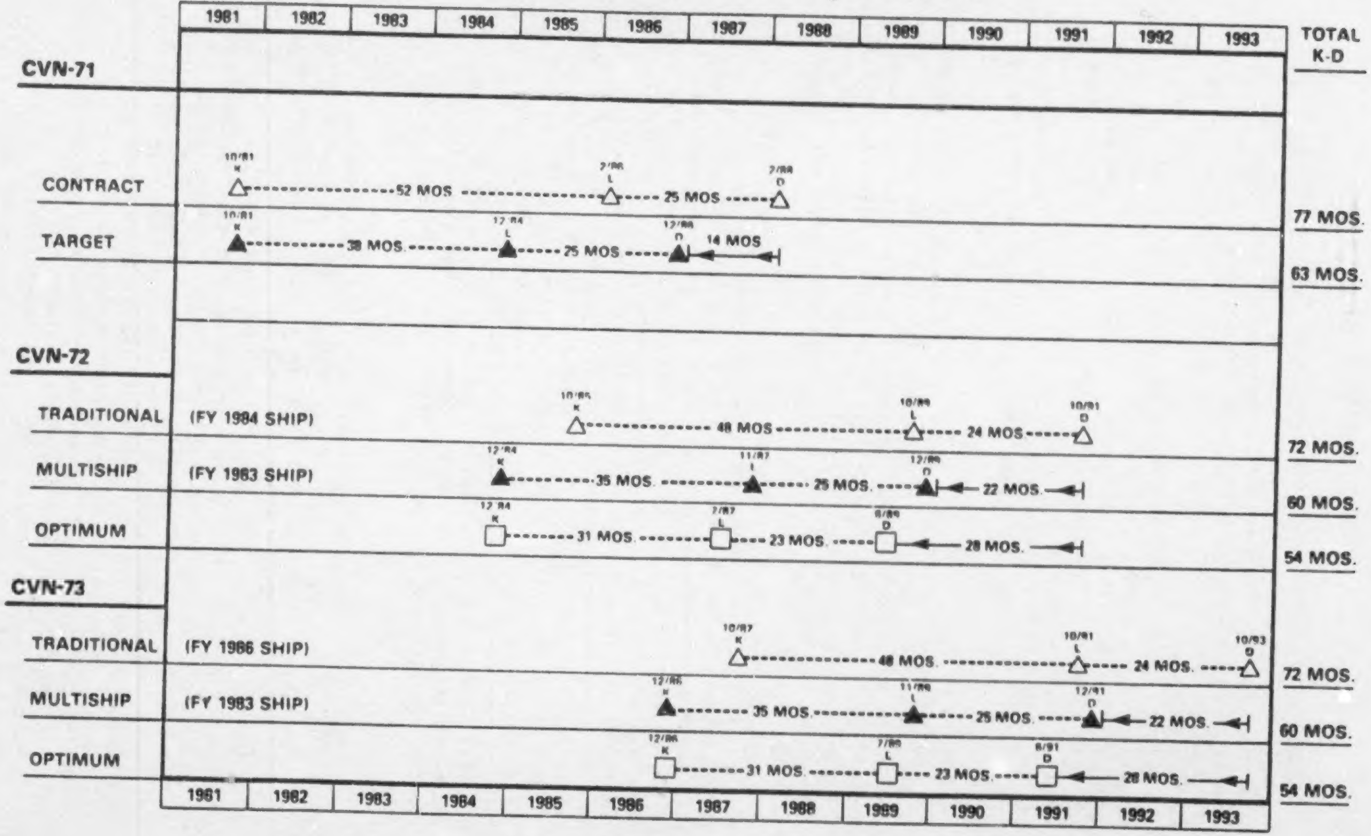
QUESTION: Mr. Secretary, the Navy has strongly advocated the two carrier procurement this year on the basis of earlier deliveries and a net savings of over $750 million. For the record, could you elaborate on these assumptions and how they were derived?

ANSWER: The Navy has said that under a FY 1983 multiship profile CVN-72 and CVN-73 could deliver up to twenty-two months earlier than under a traditional one ship at a time profile. To understand how this comes about it is necessary to understand what the Navy's program would have been (and actually was) for CVN-72 and CVN-73 prior to the decision to request full funding for both ships in FY 1983.

The "traditional" plan was to acquire CVN-72 in FY 1984 with advance funding in FY 1982 and FY 1983, and CVN-73 in FY 1986 with advance funding in FY 1984 and FY 1985. The construction and delivery schedule for this approach is shown for CVN-72 and CVN-73 in the chart you have before you now and labeled as "traditional." For comparison purposes, the multiship construction and delivery schedules are also shown.

The improved deliveries for CVN-72 and CVN-73 under the multiship approach over that expected under the traditional approach result from both starting the program sooner and improvements in actual construction schedule. The target and contract delivery schedules for CVN-71 are also shown.

CVN Schedule Comparison



AIRCRAFT CARRIERS

QUESTION: Although we save money over the long haul, $768 million more has to be expended in the first five years compared to the traditional carrier procurement strategy. If we're forced to a budget cutting mode for outlays, is it a live option to go back to the construction profile of one each in FY 1984 and FY 1986?

ANSWER: It would not be possible to attain the same savings and early deliveries for CVN-72 and CVN-73 incorporated in the FY 1983 multiship plan under a one ship at a time program, i.e., one in FY 1984 and one in FY 1986. If the multiship plan is rejected, it is always an option to go back to a more traditional profile as the question suggests, but obviously this will be more costly to the taxpayer and delay deliveries of these ships to the Navy.

QUESTION: The Navy advertises that an attendant advantage to the two carrier buy is the earlier delivery of the CVN 71 currently under construction. Apparently Newport News Shipbuilding is motivated to deliver this ship in December 1986, 14 months earlier than the contract delivery date. If Congress deletes the two carrier buy, can you still keep that earlier delivery date?

ANSWER: Contractually the CVN-71 stands alone and is separate from the multiship request. But from a practical standpoint all three ships have to be viewed together as a three ship program. The target delivery date for early delivery of CVN-71 is December 1986. The Navy believes that by building this ship using new and improved construction methods not used on previous CVN-68 Class ships, the target delivery date can be achieved. This will require the shipbuilder to assume some added risk. The Navy's level of confidence in the contractor's ability to meet the CVN-71 target delivery date goes up dramatically if the CVN-72/73 program is approved. That is so because if Newport News Shipbuilding contracts for CVN-72 and CVN-73 to deliver in the December 1989 and December 1991 timeframe, as Newport News has indicated they would, then construction of these two ships will (in its simplest sense) push the CVN-71 out of the yard in the late 1986 timeframe.

QUESTION: Navy expects a $100 million savings from a reduction of start-up costs. Since Newport News Shipbuilding has built carriers for years, including one on the building ways now, what "start-up" expenses are to be avoided?

ANSWER: The Navy estimated that approximately $100 million savings in start-up, set-up and other non-recurring costs could be saved under the multiship approach as opposed to the single ship buy plan. It is true that Newport News Shipbuilding has built carriers for years, but because they have been authorized, funded and contracted in almost all cases as one-at-a-time buys, each has experienced start-up and other non-recurring costs that could be spread over two ships or more in a multiship plan. Some of these costs include:

- engineering labor reduction due to consolidation in the issuance of drawings, test procedures, material grouping sheets, etc.
- reduction in the issuance of purchase orders and costs associated with evaluation of proposals from subcontractors.
- reduction in reproduction costs for drawings and documents of all types.

- multiple application of molds, patterns, jigs, forms and special staging as opposed to one time use. Many of these items require long term storage or have to be rebuilt or repaired if not used again right away.
- reduction in various planning functions that would have to be performed separately for both ships unless both ships were being constructed simultaneously.
- training and requalification costs for skilled personnel would be reduced.

Obviously savings in these areas would apply to both Newport News Shipbuilding and their subcontractors as well as to the thousands of GFE suppliers for a CVN.

QUESTION: The two carrier buy will afford the economic luxury of ordering material in quantity at an estimated savings of $230 million -- $200 million of which relates to Navy savings on Government Furnished Material. Won't storage costs eat up much of these savings?

ANSWER: The estimates made for economic order quantity (EOQ) savings by both the Navy and Newport News Shipbuilding were made net of additional storage costs. There are indeed extra storage costs for some material, but these costs were taken into consideration in developing the EOQ savings estimate.

QUESTION: Newport News Shipbuilding expects to save $30 million from quantity buys of contractor funished material. Navy assumes $200 million savings on such purchases for Government Furnished Material. What is the cause of higher Navy optimism?

ANSWER: There are two primary reasons for the Navy's increased optimism. First, the total GFE estimate, both nuclear and non-nuclear material, for CVN-72 and CVN-73 is approximately $2.5 billion. The best estimate for contractor material for these ships is less than half that amount; so the order of magnitude is considerably different. Second, kinds of material the Government buys in many cases lends itself much more to production line efficiencies and therefore greater savings. Much of the CFE is raw material that has to be processed further by Newport News Shipbuilding (NNS). The GFE primarily is end item equipments. End item equipments and components lend themselves much more to economic order quantity (EOQ) type savings. Furthermore, NNS was intentionally very conservative in their EOQ savings estimate since this is one cost category that is carefully evaluated and scrutinized by the Navy during negotiations.

15 CARRIER BATTLE GROUPS

QUESTION: In addition to the carrier and airwing, a battle group requires AEGIS cruisers, destroyers and submarines. Looking over the five year shipbuilding plan, how much of the program is to maintain the current fleet force level and how much is to reach the 15 carrier battle group objective?

ANSWER: Subject to Congressional support for the current building plan, Navy will have adequate surface combatants in FY 89 to support the carrier force level of fifteen ships. At that time we will not have completed delivery of all CG 47s in the pipeline and only the lead DDG 51 will have been delivered. Therefore we will have older and less capable ships in the battle groups until the DDG 51 class delivers in adequate quantities. To achieve required levels for carrier battle groups and surface action groups we will also have to use older and/or less capable ships in escort of the amphibious forces convoys and underway replenishment groups. Construction of the DDG 51 class at programmed levels is vital to achieving our force level goal both to replace retiring ships and later as a force builder.

FLEET OILERS

QUESTION: Again on the five year shipbuilding plan, there is no real increase in requests for auxiliaries and support ships. Are we to surmise that the current inventory of these vessels is adequate to support the long range 600 ship Navy?

ANSWER: The number of carrier battle groups (CVBG) will increase beyond the present 12 and battle ship surface action groups (BB SAG) will be included in the Expanded Navy. The issue of the Mobile Logistic Support Force's (MLSF) ability to support predicted wartime demands of combatants should begin with a snapshot of its present capability. The current number of operationally-available Ammunition Ships (AE/TAE) and Combat Stores Ships (AFS/TAFS) is sufficient to support the predicted wartime demands of exactly 12 CVBG. Although there are currently 17 AO/TAO (deleted) (deleted), the requirement that one AO/TAO and one AE be paired to compensate for the deficiency of one AOE/AOR battle group station ship produces (deleted). The average ship age of the majority of these oilers is 31 plus years.

In 1987 the combatant force will include 14 CVBG and 4 BB SAG. (Deleted). These numbers represent the minimum force level requirements inasmuch as the AO/TAO, AE/TAE and AFS/TAFS force levels are predicated on basing being less than 1000 miles distant. Taking into account construction as provided for in the SCN Plan, programmed retirements, and the requirement to pair an ammunition ship with an oiler to substitute for each station ship deficiency, (deleted). Clearly, the sustainability of the Navy's programmed offensive capability argues strongly in favor of no decrease in the number of TAO's, AOE's and AE's provided for in the five year shipbuilding program.

Similarly, the Expanded Navy also requires an upgrade in the support force as provided for in the SCN Plan. The AR Class repair ships and AD 14 class destroyer tenders are 40 years or older, and, despite upgrades, are not as capable as newer tenders. The ARS 50 Class Salvage Ships are needed to replace their 36+ year old predecessors, which came into the fleet well before today's significantly larger and more complex warships.

LAMPS MK III

QUESTION: Navy requests that $48.8 million be reprogrammed for the FFG 7 frigate program to accommodate the increased cost of the LAMPS MK III weapon system. What's the total cost of the LAMPS MK III vessel modifications?

ANSWER: The requested $48.8 million reprogramming and funds previously approved are required to procure the necessary ship electronics and helicopter landing systems for the FY 79 FFG program of eight (8) ships. The funds will pay for the equipment and certain non-recurring costs such as trainers and logistics support. This amount does not provide for installation.

The hardware cost per ship for procurement of the equipment for the FY 79 FFGs is $4.9 million. The estimated installation cost is $8.0 million.

LAMPS

Question: Aren't there any reasonable cost saving alterations?

Answer: The Navy has extensively examined alterations and alternatives to the LAMPS MK III weapon system. For example, elimination of the Recovery Assist, Securing and Traversing (RAST) System from the shipboard installation was examined and would result in significant cost avoidance. LAMPS MK I presently has no RAST and experience has shown that launching and recovering aircraft when a FFG-7 is rolling eight degrees, which equates to a sea state 3, is extremely difficult. In fact, the FFG-7 is only certified to operate the LAMPS MK III helicopter with a maximum ship roll of eight degrees. Particularly in the winter, sea states of 4 and 5 are frequent, and often continuous, in areas such as the Falkland Islands. With RAST, LAMPS MK III has been operated with ship rolls up to twenty-eight degrees and pitch of seven degrees, even though LAMPS MK III is about 50% larger and is more difficult to handle than the LAMPS MK I. Needless to say, this is a resounding re-affirmation of the need for, and cost-effectiveness, of RAST. Other possible alterations to the system include deletion, or equipment substitution, for the acoustic processor, radar, and ESM equipment. Not only would these result in mission degradation, the cost savings would be minimal as the design of the system has been "frozen" for some time. The system is now completing Full Scale Development and an attempt to redesign at this time would be costly in both terms of expense and time. Navy has also reviewed the possibility of substituting LAMPS MK I for the MK III in FFG-7 class ships. Results of these analyses show that the FFG-7 would incur such significant operational degradation as to make her totally ineffective as an ASW escort against the developing threat. The FFG-7 was designed and built solely for the purpose of convoy escort in the face of a severe submarine threat. In this role P-3C support may or may not be provided. The ship would not be supported by a battle group and its ASW aircraft, but would be on essentially independent duty performing all detection and engagement functions. Note that FFG-7 has not been equiped with ASROC. LAMPS MK III has always been the planned weapons delivery mechanism for this class and, without it, the FFG-7 loses its credibility as an effective ASW escort. Although LAMPS MK I has served us extremely well, we cannot lose sight of the fact that the MK I was an off-the-shelf, quick reaction production response to provide only an interim solution. The MK I will remain on 1052's and such for affordability reasons, but lacks the capability to meet our future weapon delivery localization needs.

QUESTION: How seriously has the Navy considered the LAMPS MK I helo re-engineering proposal in lieu of the costly ship modification for LAMPS MK III?

ANSWER: The Navy is currently investigating the possible re-engineering of the SH-2F with the T-700 engine. Preliminary estimates indicate a cost of about $800M for development and procurement to support the planned LAMPS I inventory. An IOC of FY 88 could be achieved assuming a FY 82 start and moderate concurrency in testing and acceptance. Use of the T-700 would provide greater fuel efficiency, greater lift capacity, and commonality of support with LAMPS MK III. Re-engining alone provides little increase in combat effectiveness. However, when combined with an increased fuel load, the present on-station time (deleted) would improve by about 70 percent. The costs and payoffs associated with this and other possible modifications are under investigation. A possible rationale for justifying the expenditure of such a large amount of scarce funds would be to utilize LAMPS MK I in place of the MK III. Unfortunately, the MK I, despite any possible modifications, cannot begin to compete with the MK III in performance or cost effectiveness against the present or projected threat. Because of the above, the Navy has not yet found supportable operational reason to pursue re-engining the LAMPS MK I. This matter is, however, under review from a logistic support basis, i.e., commonality with LAMPS III, since the MK I is planned for use through the life of the 1052 class.

20 MONTH DELIVERY IMPROVEMENT

QUESTION: Revised delivery schedules for TRIDENT subs indicate an optimism that the construction time will improve from as many as 88 months on the SSBN 728 to as few as 68 months for the SSBN 733. How is it possible to achieve this improvement of 20 months on ship deliveries?

ANSWER: The 88 Month construction period for SSBN 728 was dictated by conditions and problems at Electric Boat which are no longer applicable. The 68 month planned construction period for SSBN 733 is achievable if Electric Boat takes appropriate actions to increase manning and improve productivity. Electric Boat has initiated actions in both of these areas.

REVISED DELIVERY DATES

QUESTION: As a contrast, the subs which were started in the last 24 months are substantially behind in work progress as compared to the same construction interval for those ships nearing delivery. Why is the Navy optimistic that the revised delivery schedules are any better today than they ever were?

ANSWER: Construction was started on SSBN 733 in February 1981. Because of undermanning the ship is slightly behind in labor progress, however, the progress delinquency is recoverable and the contract delivery of October 1986 is achievable if Electric Boat takes appropriate actions to increase manning and improve productivity. Electric Boat has initiated actions in both of these areas. The problems which occurred in the past at Electric Boat which caused substantial delays to SSN 688's should not adversely affect delivery of SSN 720. Sufficient progress is being attained to permit delivery by the current contract delivery.

INDEPENDENT NAVY ASSESSMENT

QUESTION: According to GAO, Electric Boat has revised the delivery schedules so many times that it is now virtually impossible to evaluate monthly progress against labor performance. Moreover, the schedule changes usually result in the reporting of favorable variances. Has the Navy developed any performance evaluation system independent of Electris Boat's moving target data?

ANSWER: The Navy has always maintained various independent measures of shipbuilder progress including methods, such as assessment of key events, which are totally separate from the Electric Boat management control system. The Navy has requested correction of deficiencies in the operation of Electric Boat's management system which tend to obscure variances in progress. To date Electric Boat has not made required changes and as a result the Navy independently calculates progress for purposes of contract payments.

$341M COST INCREASE

QUESTION: Mr. Secretary, you've gone to great lengths to substantiate the savings of over 10 percent and earlier delivery of some 22 months on the carriers if we contract for both this year. Yet, in response to a question submitted by Senator Kasten last month, the Navy claims that it will cost us over 30 percent more, or $341 million, and delivery four months later if we delete one TRIDENT. Is this a realistic consequence of a four-month slippage?

ANSWER: The Navy holds a priced option for the second FY83 OHIO Class submarine. Therefore, a realistic figure can be estimated for the consequences of deleting the ship. The figure is approximately $341 million which includes $225M for inflation, escalation and procurement break associated with not exercising the existing priced option.

Award of SSNs 719 and 720

QUESTION: In 1979 the Navy awarded a contract to Electric Boat for the SSN 719 and 720 which assumed a contractor estimate for labor hours 23 percent below the engineering estimate derived by the Navy. This award was made against the recommendation of a Navy pre-award survey team that the EB estimates were overly optimistic. Should we brace ourselves for an impending cost overrun on these ships? Why did the Navy accept this high-risk offer?

ANSWER: Before awarding the contract for the SSNs 719 and 720, the Navy evaluated Electric Boat's cost proposal and concluded that its labor hours was underestimated. The Navy made known its concerns in this area, both during negotiations and later in writing. Electric Boat responded that it had carefully considered the Navy's concerns and had enough confidence in their labor hour estimates to leave them unchanged. Because the Navy calculated that Electric Boat could still make a profit under the contract, even if the Navy estimate proved to be accurate, the Navy's negotiator could not conclude that the pricing was unreasonable.

The Navy's budget for the SSNs 719 and 720 was based on its independent estimate, therefore there are adequate appropriated funds to support contract completion.

DIESEL SUBMARINE PROPOSAL

QUESTION: How about the diesel sub proposal to build cheaper, quieter subs in lieu of SSN 688 class ships? Is this a live option?

ANSWER: The Navy is examining the German diesel-electric submarine proposal and developing a US diesel-electric submarine design in the course of the FY 82 Congressionally directed study on diesel-electric submarines. That study is in progress and expects to provide a report of finding to the Congress on about 1 August 1982. The study will evaluate the technical merits of the German design, the shipbuilding requirements to produce this design, the manning and training requirements, and the costs involved in adapting this design to U.S. standards of maintenance, reliability and combat readiness. The study will further evaluate the U.S. diesel design and the potential missions of diesel-electric submarines to determine if diesel-electric submarines are a viable and cost effective option as a supplement to the SSN 688 class. Concerning the German diesel submarine proposal, it is important to note that the predicted noise level of this submarine, based upon data provided by the German ship designer since the ship has not yet been built, would be greater than the SSN 688's at comparable speeds.

KINGS BAY TRIDENT BASE ACTIVATION

QUESTION: The Navy is back into the "planning and study" phase with the second TRIDENT support facility at Kings Bay, Georgia. What is the current plan for activation of this facility?

ANSWER: Current Navy plans call for developing the TRIDENT Support Facilities to support a 1989 deployment of TRIDENT Submarines outfitted with the TRIDENT II (D-5) missile.

NEED FOR TWO TRIDENT BASES

QUESTION: Has there been any thought given to the notion that the one facility at Bangor, Washington, may be adequate to meet the needs of the TRIDENT fleet?

ANSWER: Careful consideration has been given to the timing of and need for an East Coast TRIDENT Base. It has been concluded that an East Coast base is required for TRIDENT support by 1989. It is operationally and strategically advantageous to deploy TRIDENT submarines from both oceans for the following reasons:

a. It is not feasible to transit submarines from the Pacific to the Atlantic due to excessive transit time which would result in the ship being outside of target range for more than half the patrol period.
b. The Soviet ASW problem is dramatically increased by forcing two ocean surveillance rather than one.
c. From a strategic targeting standpoint, operations in the Atlantic Ocean provide a greater percentage of alert time versus transit time and shorter range to target for most potential targets. Further, all potential targets are not within misisle range from the Pacific operating areas. Targeting effectiveness is significantly improved when the force of TRIDENT ships is split between the Atlantic and Pacific. If TRIDENT operations are constrained to the Pacific, more submarines will be required to do the same job.
d. A two ocean SSBN force deployment also complicates any potential Anti-Ballistic Missle (ABM) defense by presenting a significantly larger range of attack azimuths than a Pacific-only deployment.
e. Force reduction in the Atlantic Poseidon Force will limit SLBM target coverage during the 1990's unless replaced by TRIDENT ships.

BATTLESHIPS

QUESTION: Secretary Lehman testified earlier this year that the reactivated battleships would provide the nucleus of a surface action battle group. Operating in a region with carrier battle groups, could a surface action group diminish the requirement for carriers?

ANSWER: No. The surface action group (SAG) built around a battleship is not equivalent to, nor can it diminish the requirement for carrier battle groups (CVBG). To clarify, the term "battle group" connotes significant offensive and defensive capability, and considerable operational flexibility. A battle group is capable of performing effectively the full spectrum of at-sea offensive warfare tasks. It includes a carrier, organic tactical air, surface warships, and submarines. A SAG, on the other hand, is two or more surface combatants assigned by an operational commander to conduct predetermined offensive missions . . . SAG missions may include any warfare function within the capabilities of the units assigned. The SAG may or may not be supported by shore or sea-based aircraft, submarines, external sensors, or logistics forces. A SAG is generally employed to accomplish more limited objectives.

In the face of enemy air opposition, a carrier battle group can conduct a wide variety of mission tasks: from destruction of enemy ships and submarines, to strikes against essential naval installations and industrial targets. Its capability is based on the firepower of an airwing of 80 to 90 tactical aircraft, tailored to suit operational requirements. These aircraft can sustain operations for long periods of time and, depending on the tactical situation, can deliver 150-300 tons of ordnance per day for up to ten days without rearming. The battleships also provide significant combat power as the leader of a SAG. The survivability and sustainability of the battleship, the offensive surface-to-surface capability inherent in the ship's TOMAHAWK and HARPOON cruise missiles, and its superior main gun battery, provide this combat power. However, as capable and powerful as the battleship is, it simply is not equivalent to a carrier.

MARITIME PRE-POSITIONING SHIP PROGRAM

QUESTION: Mr. Secretary, would you please describe the proposed "convert and charter" program for the TAKX roll-on, roll-off vessels.

ANSWER: The TAKX convert and charter program is an acquisition program for the Maritime Pre-positioning Ships. Ships proposed may be acquired either by conversion of existing ships or through new construction. The TAKX ships are commercial type vessels to be built to American Bureau of Shipping (ABS) and U. S. Coast Guard criteria. The cost of conversion or construction will be borne by the offeror. Navy will pay charter cost once the ships are delivered for operation by the Military Sealift Command.

QUESTION: At what point in the operational cycle does the cost to lease equate to the cost of procurement for these RO/RO vessels?

ANSWER: The Convert and Charter Program is expected to be more cost effective than direct procurement when total costs are viewed over the term of the charter period. High acquisition costs are avoided and annual charter payments are expected to equate to standard time charter cost. An actual point in the operational cycle where cost to lease equates to cost of procurement can not be provided at this time. Definitive cost data will not be available until subsequent to the receipt of "Best and Final" cost proposals.

QUESTION: The conference report on the FY 1982 appropriation included language directing the Navy to negotiate the charter contracts with an option to buy the ships. Does the Navy have any plans to exercise any of these options?

ANSWER: It is too early to tell whether the purchase option will be exercised. We would, with the approval of Congress, exercise the purchase option should we determine that such action would be in the Government's best interests.

QUESTION: The Navy was also banned from financing any conversion with charter funds. What has been the impact of this prohibition?

ANSWER: This prohibition has not had any major impact to date. Offerors have been required to use their own money for the necessary design efforts. They must also finance the required conversions of ships offered. It is possible that this may have discouraged some potential offerors; however, the Navy has no specific knowledge of this.

SEALIFT

QUESTION: The five year shipbuilding plan clearly indicates an emphasis on subs and surface combatants. Is this program at the expense of sealift enhancement?

ANSWER: No, the shipbuilding plan in the FYDP has been developed to create a balanced program leading to achievement of force level objectives in all areas of naval warfare. Funding for strategic sealift has been provided for in the FY 81-83 TAKRX programs and in the O&MN account for the convert and charter of the TAKX ships.

SEALIFT

QUESTION: Mr. Secretary, are you confident that the construction program for sealift ships will be adequate to fully support the RDF initiatives?

ANSWER: The TAKX, TAKRX, NTPF, RRF, NDRF and U. S. flag fleet together make a viable sealift program.

QUESTION: By moving the T-AKX program out of new construction and into chartering, the Navy has drastically modified the sealift program. For the record, please provide a detailed breakout of the FY 1983 request associated with sealift and RDF enhancements. Also provide a five year projection of requirements.

ANSWER: The breakout of the FY-83 request for sealift and RDF is as follows:

SEALIFT SUMMARY
($ IN MILLIONS)

13 Ships and Support (NTPF)	174
Ammo Pre-positioning	50
TALS*	6
Maritime Pre-positioning Ships	40
TAKRX (SL-7)**	341
Sealift Enhancement Support Program	63
RRF (Ready Reserve Force)	20

* Program total includes O&MN cost only, acquisition cost not included.

** Program totals include estimated O&MN as well as acquisition/conversion cost.

For Fiscal Years 1984-1987, a projection of requirements is $2,396 million. This is an estimate which is still under review within the Department of the Navy.

NAVY SHIPBUILDING R&D

QUESTION: Please explain why the Navy transferred ship contract design development funding from the RDT&E,N account to the SCN account.

ANSWER: The requested Ship Design line in the SCN appropriation will fund the Contract Design requirements of all ships in the Navy's shipbuilding program. The contract design phase commences at the completion of the RDT&E funded preliminary design phase and ends with the award of a contract for the detail design and construction of the ship. By the start of contract design, the ship design is essentially set. During contract design it is refined and made into a set of contract drawings and specifications to be incorporated in the ship construction contract. Since the majority of the contract design effort is spent preparing this input to the contract package, this work can reasonably be funded under procurement rather than RDT&E,N.

Ship contract design is not a developmental effort in our shipbuilding programs. However, the nature of the products of ship design are such that they are required prior to award of the basic construction contract. Therefore, these funds are being requested as a line item separate from the individual ships, which will be requested one or two years later.

Funding Contract Design in the SCN Appropriation will improve coordination between the production of contract designs and the shipbuilding program and increase stability in the five year defense plan. It will improve execution of the shipbuilding program through improved coordination with changes in the funding required for design as the funding for the shipbuilding program itself changes.

QUESTION: Should not all design funding remain in the RDT&E account?

ANSWER: Because ship contract design is not developmental in nature, and in order to improve the coordination between ship design and the shipbuilding program, the Contract Design effort has been transferred into the SCN account. Efforts which are truly developmental in nature, such as ship subsystem product improvement, testing at land based test sites, as well as concept and preliminary design, will remain in RDT&E.

QUESTION: Some $18.8 million is budgeted in FY-83 for Ship Concept Formulation. The Navy descriptive summary for this program states that this funding will help develop 20-25 design alternatives for 10-12 separate mission areas. What design alternatives are being considered?

ANSWER: The purpose of the Surface Ship Continuing Concept Formulation (CONFORM) Program is to identify whole ship concepts and their R&D requirements for the Initial Operational Capability (IOC) period 1995-2000. The following design alternatives are being considered for FY-83:

- Alternative Battle Group Escort - CGV(X)
- ASW Escort - FFS(X)
- Picket Destroyer - DDR(X)
- Submarine Destroyer - DS(X)
- Caribbean Patrol Leader - PCL(X)
- Dispersed Strike Ship/Craft - PC(X)
- Landing Fire Support - LFS(X)
- Utility Ship - LSU(X)
- Utility Ship (Artic) - LSU(A)
- Submarine Support Ship - AOS(X)
- Advance Base Tender - ADR(X)
- Aviation Support Ship - AVS(X)
- Mine Clearance Helicopter Ship - MCMH(X)
- SEAL Team Insertion Craft - SC(X)

Only $5 million of the $18.8 million requested is for this purpose. The other funding requested is for completion of the DDG 51 Preliminary Design, continuation of the LPDX Preliminary Design, and the continuing development of analytic techniques and computer supported design in support of ship design.

Surface Effect Ships

QUESTION: What is the Navy's position on future development of Surface Effect Ships? Will exploratory-type research be conducted? Will you reconsider initiation of a 1,500 ton prototype development program?

ANSWER: The Navy has no definitive plan for Surface Effect Ship development in the future. The present program is in exploratory development and is supported under Program Element 62543N, Ships, Submarines and Boats Technology. It focuses on lengthening and power plant upgrading of a Bell Halter craft (B-H 110) for test and evaluation. The modified craft, which represents a high length-to-beam SES, is designated as SES-200. It is anticipated that the test results of this craft will provide the technical and operational data needed for determining a future course for the development of a

1,500-ton prototype SES. At present, the Navy is not committed to such a development program.

Management of Ship Overhauls

QUESTION: GAO's report on ship overhaul cost growth and slippage concluded that one of the major reasons for chronic problems in this area is that the program is poorly managed. Responsibilities for the planned shipwork are fragmented throughout the Navy organization. A Navy report issued almost two years ago concluded that no single individual is responsible for implementation of policy, funding, planning and execution of any given overhaul. Mr. Secretary, can you offer any proposals to centralize the management and accountability of ship overhauls?

ANSWER: The Commanding Officer is responsible for the overhaul of his ship whether it be at a naval shipyard or in the private sector. To assist the Commanding Officer in carrying out this responsibility, the Navy organization as it pertains to overhauls is briefly stated as follows:

a. Overhaul scheduling, identifying modernization requirements and funding for both repairs and modernization are the responsibility of the Chief of Naval Operations.

b. The Commander, Naval Sea Systems Command is responsible for the overall execution of ship overhauls. A Depot Operations Improvement Program (DOIP) was initiated by NAVSEA in August 1981. The purpose of the DOIP initiatives are to improve the quality and timeliness of depot maintenance through increased management attention by Ship Logistic Managers, Shipyard Commanders and Supervisors of Shipbuilding. A DOIP Board of Directors was established to oversee the program. Improvements have already been achieved, especially in the areas of schedule adherence, work growth, and award interval.

c. The Fleet (Type Commanders and Commanding Officers) has the responsibility to identify repairs required in the overhaul and ensure they are within the funding constraints. PERA assists in this effort. The fleet effort is coordinated by type desk officers who work with specific classes of ships.

d. The Navy repair activity (naval shipyard or supervisor of shipbuilding) has the responsibility to ensure the technical aspects of the overhaul are satisfactory and that the overhaul is executed within the schedule and funding provided.

In order to help coordinate maintenance functions across the organizations identified above, some ship classes are being assigned port engineers similar to those used by the Military Sealift Command and private shipbuilding companies. The port engineers will act as the central point of contact for all commands regarding the management planning and execution of maintenance for designated ship classes.

PRIVATE SHIPYARD OVERHAUL CONTRACT GROWTH

QUESTION: The Navy adheres to the competitive bid contracting procedures for private shipyard overhauls which requires the Navy to provide specifications in advance of the overhaul. GAO contends that contract growth can be attributed to untimely and incomplete work package specifications and has recommended that the Navy test the negotiated procurement method. What is the feasibility of implementing the recommendation?

ANSWER: The Navy has gone beyond the test stage and is actively utilizing the negotiated procurement method for many overhauls. For example, it is envisioned that in FY83 a Request for Proposal (RFP) will be utilized for seven multi-ship procurements totaling 30 ships.

COMPETITIVE BIDDING CONTRACT PROCEDURES

QUESTION: To what extent is the competitive bid method more or less economical than the negotiated procurement method? Is the degree of economy dependent upon the level of complexity of the ship overhaul?

ANSWER: It is presumed that the question regarding "competitive bid method" alludes to formal advertising utilizing Invitation for Bids (IFB) as opposed to the negotiation procurement method. The IFB methodology is less costly and time consuming than negotiated procurements using an RFP because fewer Navy personnel are involved in the review process. However, the Navy believes that for more complex overhauls the benefits derived from negotiated procurements exceed the disadvantage associated with additional cost and time.

Alternative Contracting Methods

QUESTION: What alternative contracting methods are being tested or implemented? What are the advantages and disadvantages? Which methods are preferred?

ANSWER: The traditional contracting methodology for ship overhauls has been the use of an Invitation for Bids (IFB). NAVSEA has departed from the traditional approach by utilizing Request for Proposals (RFP). This is in consonance with GAO recommendations. Whereas IFBs elicited only a potential contractor's bid or price, the RFP requires contractors to describe their methodology for accomplishing the overhaul. Thus, the Navy can assess the technical acceptability of a contractor's approach rather than award to a contractor solely upon the basis of price. Other departures from past practice include the use of multi-ship contracting and incentivized contracts. With regard to the former, in FY 82 the Navy expects to award seven multi-ship contracts for 30 overhauls to be performed in FY 83-85. Substantial benefits are expected to accrue including production efficiencies, management and purchasing economies, early identification of the overhauling contractor, stabilized contractor work force, and improved configuration contract. Regarding the use of incentivized contracts, several Cost Plus Award Fee (CPAF) contracts have been awarded for the overhaul of Spruance class destroyers. The first two such overhauls are completing in May 82 at which point an analysis will be performed to ascertain the benefits and liabilities derived from these CPAF contracts.

SHIP ALTERATION SLIPPAGES

QUESTION: The GAO and NAS audits indicate that deferred alterations are up from 28 percent in the FY 1979 program to 35 percent in FY 1980. Does the Navy expect this trend to continue?

ANSWER: Latest information indicates that the deferral rate in FY 1981 has declined to less than 30 percent. This downward trend is expected to continue as a result of several initiatives which should reduce alteration deferrals. These programs include Quarterly Verification Conferences involving

OPNAV, NAVSEA and Fleet representatives. At these conferences ship modernization packages are reviewed 12-15 months prior to start of overhaul. High risk alterations are identified and early action is initiated to support accomplishment. Additionally, NAVSEA has implemented a Technical Documentation Improvement Program which should improve both the quality and timeliness of alteration design and reduce deferrals associated with technical inadequacies. There are also a number of ongoing actions to improve material tracking and usage data plus coordination between technical and material managers which will reduce alteration deferrals due to material problems.

QUESTION: At least 1/3 of the deferrals occurred when the ships were in the yard for overhaul. GAO attributes the deferrals to inadequate technical development, insufficient material, late engineering data and unexpected cost increases or other modifications. What is the Navy doing to improve alterations planning?

ANSWER: Several programs have been implemented to improve alteration planning. The Depot Operations Improvement Program (presently being implemented) centralizes planning functions in one shipyard to eliminate duplicate and incompatible design efforts; sets design and material milestones; and, improves technical documentation of alterations. Commander, Naval Sea Systems Command and Commander, Naval Electronics Systems Command completed a joint study in February 1982 and have since commenced actions recommended by the study to improve coordination between technical and material managers to reduce alteration deferrals due to insufficient material and unexpected cost increases. The Commander, Naval Sea Systems Command has implemented a separate program designed to insure the technical adequacy of SHIPALTs. Additionally, OPNAV initiated in January 1982, quarterly Fleet Modernization Program verification conferences, which utilize newly developed design and material progress reports in the review of programmed SHIPALT status, resolution of logistic problems and identification of high-risk SHIPALTs.

QUESTION: A GAO audit of four ships at the Puget Sound Naval Shipyard in FY 1980 indicates that the Navy purchased 19 percent or $4.7 million of material more than required in support of the overhauls and alterations. Is this a recurring statistic for materials left over?

ANSWER: Ship overhauls are labor intensive and any material delays are extremely expensive. Efficient management of overhauls dictates heavy emphasis on assurance that all required material is on hand to support overhaul execution. Although this may result in some excess material, it is a relatively small expense for overall efficiency of operation where labor is 80-90 percent of total cost. By transferring to other follow-on overhauls, selling back to the Supply System or making material available to other industrial activities, very small dollar losses result. In the case of the four ships audited by GAO, the latest figures from Puget Sound Naval Shipyard advised that the total cost of these overhauls was $123 million and at the end of overhaul excess material amounted to $3.2 million or 12 percent of material ordered. This unused material was retained by the shipyard for future use or was returned to the Supply

System for credit. This 12 percent figure approximates the average statistic for materials left over at end of overhaul.

FLEET OILERS

QUESTION: The current plan is to construct TAO civilian manned oilers, with a 180,000 barrel capacity, to join AO military manned oilers with a 120,000 barrel capacity. What would be the cost of upgrading the capacity of the military manned oilers? Is there some compelling logic against the proposal?

ANSWER: A study to determine the feasibility and cost of increasing the capacity of the CIMARRON Class oiler will begin later this fiscal year.

If conversion is feasible, a decision to proceed would have to weigh other factors in addition to cost. The present and projected oiler inventory (including the AO 177 Class) is insufficient to meet projected wartime demands (deleted). Increasing the capacities of all five CIMARRON class oilers to 180,000 gallons each would only decrease the total TAO 187 acquisition requirements by (d) due to the need to replace other overage oilers in the inventory. From past experience, actual costs for jumboizing oilers in the 1965 time frame were twice the estimated costs, and the projected 6-8 month conversion period increased to more than two years per ship. Therefore, decision to proceed would have to take into account the impact of time out of service for conversion on fleet readiness.

QUESTION: Was conversion of existing tankers considered as an alternative to new construction? What are the advantages and disadvantages?

ANSWER: Conversion of existing tankers was considered as one alternative to construction of TAO 187 commercial oilers. The TAO 187 was selected as the option which would satisfy predicted wartime demands from the total of individual theaters with the fewest ships. The relative cost of a converted tanker compared to a TAO 187 is therefore an illusory advantage inasmuch as the ships can not be compared on a one-for-one basis.

Modifications necessary to turn a tanker into an oiler are extensive and include items such as:

- Raised UNREP deck.
- Independent steering system.
- UNREP station for POL/cargo.
- Pump and piping upgrade.
- Electrical power increases.
- Communications suite.
- Enlarge deck house.
- Hotel service upgrade.
- Segregated ballast system.
- Lifeboats.

Engineering investigation showed that a tanker so modified would have insufficient intact stability in both full load and full ballast conditions and suffer reduced capacity due to the modifications. Virtually all commercial tankers have a 16 knot maximum speed and the modifications would have further reduced maximum speed. This 16 knot limitation would prevent the converted tanker from performing as a battle group fuel reservoir in the absence or loss of the station ship AOE/AOR, as the TAO 187 can do, and would also prevent other replenishment ships from exploiting their 20-knot speed capability if formed with them into an underway replenishment group.

SALVAGE SHIPS

QUESTION: Is there a case for the proposition that the new construction of ARS salvage ships should be accompanied with a service life extension of the newer ARS vessels in the inventory?

ANSWER: The case for the service life extension (SLEP) of ARS 38 class ships to augment ARS 50 class construction is based upon the point that we are currently building to the absolute minimum force level. The respective Fleet Commanders in Chief have projected a wartime requirement for salvage ships in excess of the established minimum force level. SLEP of ARS 38 class ships would provide additional force level capability despite the inability of these ships to meet all operational requirements. However, the newest ARS 38 class ship is now 36 years old. A SLEP would require approximately 12 months and $35 million (FY-83 dollars) for all required repairs and alterations. This could yield approximately 10 to 15 years additional service life but would not produce a ship capable of meeting all operational requirements nor meet current habitability standards. Although the ARS 38 SLEP proposal is valid as a means of augmenting salvage ship assets it cannot be considered as a viable substitute for ARS 50 class construction.

Ship Support Improvement Project

QUESTION: The Navy is transitioning to new concept of progressive ship maintenance in lieu of regular periodic overhauls. How extensive is this new maintenance strategy? Are any near term cost savings anticipated?

ANSWER: The progressive overhaul strategy differs from traditional Navy maintenance practices in that regular periodic overhauls have been eliminated in favor of shorter, more frequent intermediate and depot level maintenance periods. Under this concept the ships and their equipment undergo continual overhaul. The FFG 7 Class is the only ship class presently scheduled for this maintenance concept, although the Engineered Operating Cycle and phased maintenance programs being used for many Navy ships are similar in that they schedule one or more short availabilities between major overhauls. These strategies are being used to extend the period between overhauls and increase the availability of our ships. The budget figures include funds for support of the FFG 7 Class ships under the progressive overhaul concept and additional savings are not anticipated.

QUESTION: Based on actual cost data for regular overhauls, is the progressive maintenance strategy expected to be more or less costly than traditional maintenance over the life cycle of the ship?

ANSWER: There is presently insufficient actual cost data to make a definitive comparison between the two strategies. Because the FFG 7 Class ships are scheduled for a major modernization every ten years, actual data will not be available for some time. However, the Navy anticipates that the progressive maintenance strategy will be slightly less costly than traditional ship maintenance over the life cycle.

QUESTION: An out growth of this concept is the expectation that the ship's force will have more responsibility to diagnose maintenance requirements. Has the Navy quantified the impact of shipboard personnel shortages on the progressive maintenance program?

ANSWER: There has been minimal if any impact. Petty officer manning in FFG 7s is almost 100% of allowance, with manning shortages basically in the E3 and below areas. Given the Navy's overall petty officer shortfall, FFG 7s are in fact manned above the Fleet average in the E5-E9 area.

1983 PROGRAMS

QUESTION: What actions were taken in developing the fiscal year 1983 ship maintenance and modernization program that were different from those of prior years?

ANSWER: In years prior to FY 1983, the Navy program was developed in three separate and distinct areas during different time frames as summarized below:

a. Scheduling of overhauls.

b. Developing program requirements for maintenance and modernization.

c. Programming the resultant workload with the naval shipyard and the supervisor of shipbuilding (SUPSHIP) offices. This approach did not provide adequate communication between all parties involved throughout the process. For FY 1983, the above three elements occured concurrently during the Fleet Overhaul Scheduling Conferences conducted in September 1981. These conferences involved senior personnel from each command: shipyards, SUPSHIP's, and NAVSEA representing the "producer" element, type commander and fleet commanders representing the "customer", and the CNO ship sponsor representing "ownership".

All participants were intimately involved in reviewing and adjusting the program and thus were able to knowledgeably agree on the executability of the FY 1983 ship overhaul program.

It is the opinion of the Navy that the entire programming process was immeasurably strengthened in FY 1983 by this approach.

QUESTION: What assurance is there that the program as currently revised is executable in a timely and cost-effective manner? Are more changes anticipated in the overhaul and/or selected restricted availability schedules? If yes, please identify how many and the reasons for the projected changes.

ANSWER: The care with which the FY 83 program has been developed (as noted in the answer to the previous question) together with the concurrence from all concerned activities, and the Navy's effort to reduce overhaul costs, gives a reasonable level of assurance that the program will be executed in a timely and cost-effective manner. The 1983 Congressional Budget submit identified 66 ships in the FY 1983 ship overhaul program. Although there have been three changes since the Congressional Budget submit, there are still 66 ships in the program to be overhauled in FY 1983. The three changes are summarized as follows:

a. USS ROANOKE (AOR 7) overhaul was advanced one month (10/82 to 9/82) from FY 83 to FY 82 as compensation for USS BONEFISH (SS 582). BONEFISH had to be rescheduled from FY 82 to FY 83 in order to meet an operational requirement after a transfer from the Pacific Fleet to the Atlantic Fleet.

b. USS CALOOSAHATCHEE (AO 98) overhaul was advanced one month (10/82 to 9/82) from FY 83 to FY 82 as compensation for USS DANIELS (CG 27). DANIELS had to be rescheduled from FY 82 to FY 83 to allow sufficient time for Sperry Gyro Corp to refurbish DANIEL's fire control radars and directors before DANIEL's completed overhaul.

c. USS RICHARD L. PAGE (FFG 5) overhaul was delayed to FY 84 to allow one more deployment for the ship following extensive work in the main propulsion area. Following this work, PAGE's material condition was judged as excellent for another deployment. USS AINSWORTH (FF 1090) overhaul is advanced based upon operational availability to FY 1983.

QUESTION: Which of the ships that slipped to fiscal years 1984 and beyond are now being considered for return to the 1983 schedule? What are the dollar values involved? Please identify each ship and the projected dollar value of the associated overhaul.

ANSWER: In the FY 1983 Congressional Budget, as submitted, no ships were slipped from FY 1983 to FY 1984. The initial Navy POM 83 included 66 ships in the overhaul program. the FY 1983 Congressional Budget still includes 66 ships in the program. Between the initial POM 83 and the FY 83 Congressional Budget, a period of several months, discussions were held internally as to the number of overhauls to be budgeted in FY 1983, based largely upon funding availability. The final OSD/Navy decision was to overhaul 66 ships as in the initial POM review. Sufficient personnel were programmed in FY 1983 (POM 83) as well as in the FY 1983 Congressional Budget to accomplish 66 overhauls.

QUESTION: Since the FY 1983 overhaul schedule already seems to be "very tight" how will these returns (add ons) impact on the executability of FY 1983 ship maintenance and modernization program?

ANSWER: There are no (add ons) to the FY 1983 Congressional Budget. The 66 overhauls in the FY 1983 budget are the ships intended to be overhauled in FY 1983. These ships were originally intended to be included in the 1983 ship overhaul program from the viewpoint of funding and industrial resources. As previously discussed, internal reviews were held within Navy and with OSD as to program levels with the resultant decision that the initial POM program would be funded and that sufficient personnel ceilings would be allocated to assure that the FY 1983 ship overhaul program was in fact executable.

QUESTION: What circumstances have changed that convinced the Navy and DoD that the overhaul program could accommodate these adjustments?

ANSWER: The dialogue within Navy and with OSD personnel was solely a dialogue of providing the necessary funding resources for a 66 ship overhaul schedule. The necessary funds were provided by specific Navy and OSD action to fund a 66 ship overhaul program for execution in FY 1983, as in the FY 1983 Congressional Budget.

QUESTION: What indications are there that the established trend of late overhaul completions will not continue into FY 1983?

ANSWER: There are positive indicators of a trend to reduce late overhaul completion, and that trend is expected to continue into FY 1983. The Navy closely monitors overhaul schedule completion statistics as part of the Depot Overhaul Improvement Program (DOIP). For example these statistics show a 50% improvement in private sector completion performance in the last year.

To ensure that this downward trend continues, the Commander, Naval Sea Systems Command, under the DOIP, is pursuing a program that places increased management visibility on all aspects of the ship overhaul process. Initiatives being implemented under DOIP include innovative contracting procedures, streamlining advanced planning procedures, emphasizing shipyard commander/supervisor of shipbuilding responsibilities in overhaul execution and improvements in planning the fleet modernization program.

Recently, the process of bringing representatives from the type commander staffs together with key representatives from the naval shipyards and supervisor of shipbuilding concurrently with the annual fleet scheduling conferences will obtain a better customer/producer relationship. This relationship will develop realistic agreements concerning the quantity of work that can be accomplished during a given overhaul duration.

QUESTION: If late overhaul completions continue, how does the Navy plan to maintain the established overhaul schedule (as currently revised) without further major adjustments? What additional corrective actions and do you anticipate will be required to ensure executability of the FY 1983 program?

ANSWER: With the improvements previously discussed, if the Navy obtains the required CIVPERS end strength and funding levels identified in the FY 1983 Congressional Budget in a timely manner, the Navy can execute the ship overhaul program as currently planned. If, for example, the FY 1983 appropriation is late and any funding reductions or CIVPERS reductions occur after the program year has begun, the problem in executing the budgeted FY 1983 program becomes obvious. As noted earlier, Navy fully expects the improved overhaul completion performance trend to continue. However, even if overhaul completion performance remains static, the program is executable, and is vital to maintaining the readiness of our Fleet.

NIMITZ OVERHAUL

QUESTION: What is the current status of the USS NIMITZ overhaul?

ANSWER: The complex overhaul of the USS NIMITZ is presently scheduled for 15 months, commencing in Fiscal Year 1983. The planning continues for the scheduled complex overhaul of the USS NIMITZ at the Newport News Shipbuilding & Drydock Company. This planning includes development of design drawings for the modifications and improvements to be accomplished during the overhaul and the procurement of long-lead material items.

QUESTION: In view of the heavy workload (both new construction, overhauls, etc.) assigned to Newport News by the Navy, what assurance/evidence does the Navy have that overhaul of the NIMITZ will not adversely affect other Navy projects? What impact would a 6-month overhaul extension have on other Navy projects?

ANSWER: Newport News Shipbuilding has indicated throughout the planning process that they are capable of performing the proposed overhaul work in conjunction with other workload. They have sufficient workforce to adequately support the proposed work package. The Navy forecast indicates that the overhaul will not impact on other Navy projects ongoing within the shipyard. Should an overhaul extension for NIMITZ be required, it is anticipated that the shipyard would maintain sufficient work force to preclude impact on other Navy projects in progress.

PUBLIC SHIPYARDS PERSONNEL CEILING REDUCTION

QUESTION: What would be the impact of a 1,000 shipyard personnel ceiling reduction over what was projected by the Navy for FY 1983? Please be specific.

ANSWER: The FY 1983 budget reflects a balanced workload/work force posture for the shipyards. It is estimated that an end strength reduction of 1,000 positions would require the reassignment of a minimum of two ships from the current workload. Reassignment of FY 1983 overhauls at this stage would cause planning and material procurement inefficiencies which increase program costs. As this is clearly counterproductive, and would adversely impact readiness, it is strongly recommended that the requested FY 1983 shipyard end strength be approved.

PUBLIC SHIPYARDS - TEMPORARY EMPLOYMENT AND OVERTIME

QUESTION: How does the Navy justify the planned, large amount of overtime and temporary workers which exceeds the Navy's goals as stated during FY 1982 hearings before the House Appropriations Committee? Have the Navy's goals changed? If so, what is the basis for such a change? If not, to what extent will their projected overtime rates and the number of temporary workers affect shipyard productivity, costs, quality of work, and ship completion schedules? Please provide your best estimates.

ANSWER: The statements contained in the FY 1982 Hearings before the House Appropriations Committee represent an ideal case with regard to temporary employment and overtime. The Navy's goals to efficiently and effectively execute all shipwork, both planned and emergent remain unchanged. However, a level of overtime is required to properly manage critical path work in scheduled availabilities. Similarly an efficient surge capacity is necessary to respond to emergent fleet requirements. The availability of both temporary employees and the ability to selectively apply overtime to efficiently work on all assigned shipwork is essential to ensuring on-time completions. The planned level of temporary employees and overtime is not expected to impair productivity or quality of work. The skills and crafts for which temporary employees are used in naval shipyards tend to be those for which extensive training is not required. Consequently costs are not adversely affected by this judicious use of temporary personnel.

It should be noted that the Navy's budget for FY 1983 provides for an increase of over 4,000 in civilian end strength at Naval Shipyards reflecting increased workload as well as reduced reliance on temporaries and overtime. This will provide a greater flexibility for accommodating any workload changes which occur in FY 1983 and will provide for the efficient balance of full-time permanent and temporary personnel and overtime which is necessary to sustain quality on-time shipwork.

PRIVATE SHIPYARD OVERHAULS

QUESTION: In view of the inability of shipyards to hire skilled craftsmen and the long time it takes to convert an apprentice to journeyman, will the 4,200 shipyard personnel increase have any impact on the execution of the FY 1983 ship maintenance and modernization program? If so, how?

ANSWER: The 4200 personnel increase spread over eight naval shipyards will permit the execution of the FY 1983 ship maintenance and modernization program with less reliance on temporary employees and overtime. Additionally, this increased level of permanent employment will assist in providing the stable workforce required for follow on years of work.

QUESTION: Considering the present shortages of shipyard skills, what has the Navy done to assure itself that sufficient skilled manpower is available to satisfy current and projected repair program requirements at the naval shipyards?

ANSWER: There is no shortage of unskilled labor available for hire in any of the labor markets in which naval shipyards are located, nor do the naval shipyards experience any difficulty in recruiting unskilled workers. The numbers of skilled craftsmen available for hire varies from trade to trade and from one labor market to another. For example, the Philadlephia Naval Shipyard may be able to find considerable numbers of skilled machinists in the local labor market at most times, but is seldom able to satisfy 100% of its machinist requirements with "off the street" hires of fully-skilled journeymen. Shipfitters and other trades that are peculiar to shipyards are normally not available as direct, experienced input to the work force. In other labor markets, there is virtually no pool of skill craftsmen to draw from, and almost all new hires will require some training. Naval shipyards therefore plan their training programs on the historically validated premise that most of the people they hire, into all trades, will require training.

The Navy is doing two things to assure sufficient numbers of skilled manpower to satisfy current and projected work requirements:

(1) We are increasing the numbers of personnel we are enrolling in formal skills training programs. While the largest of these is the apprentice program, there are a variety of others -- "pre-apprentice" programs, helper-trainee programs, helper-to-intermediate-level mechanic programs, and intermediate-to-journeyman programs, to name a few -- each designed to take its trainees to a specified skill level and each targeted at a different population of trainees.

(2) We are embarked on an ambitious program to modernize shipyard training by systematically analyzing the skill requirements of critical shipwork tasks and designing training modules to meet those specific skill requirements. The training modules will be highly flexible in structure and content so as to be readily adaptable to a wide variety of training situations, from use by instructors in group-paced training classes to use by individual trainess in self-paced independent study. The objective is to be able to rapidly impart to appropriate members of the work force those specific skills that are needed for accomplishment of critical shipwork tasks.

QUESTION: How successful have naval shipyard training efforts and apprentice programs been in satisfying manpower shortages in critical shipyard skill categories? Please identify current skill shortages and number of apprentices undergoing training in these skills by shipyard.

ANSWER: Naval shipyard apprentice and other training programs have been immensely successful in satisfying manpower shortages in critical shipyard skill categories. A list of the 6,906 apprenticers currently enrolled in 48 trades and crafts among the eight naval shipyards is appended hereto.

Skill shortages are dynamic. The numbers of skilled workers in any occupation who are available for hire vary from day to day in each labor market. All of these trades and crafts can be categorized as shortage skills for shipyards, however, in that there are seldom enough of any of them to satisfy a labor-intensive shipyard's demands for large numbers of them.

Since the first Navy Yard apprentice school was established at Mare Island in 1958, the naval shipyards have found their apprentice programs to be their most reliable, consistent, and effective source of skilled craftsmen. The efforts that are currently underway to modernize shipyard training are intended to improve and build upon our apprentice programs by making our apprentice training more job-specific, more efficient, and even more effective than it has been.

(The list follows:)

TABLE 1
NAVAL SHIPYARD APPRENTICE ENROLLMENT
31 DECEMBER 1981

APPRENTICE TYPE	NOSL	PTSMH	PHILA	NORVA	CHASN	LBEACH	MARE	PUGET	PEARL	TOTAL
Air Cond. Eqt. Mech.	0	14	0	26	12	14	3	21	22	112
Auto Mech.	0	2	8	0	2	0	0	0	0	12
Boatbuilder	0	0	0	11	0	0	0	0	0	11
*Boilermaker	0	0	77	54	5	43	12	30	38	259
Boiler Pt. Eqt. Mech.	0	1	0	14	0	0	0	0	0	15
Boiler Pt. Op.	0	4	0	0	0	0	0	4	0	8
Carpenter/Marine	0	0	10	0	1	0	0	2	0	13
Elec. Pow. Contrl.	0	0	0	0	2	0	0	8	0	10
*Electrician	0	94	98	153	75	59	92	85	26	682
Electrician High Volt.	0	0	11	0	0	0	0	0	0	11
Electrician Maint.	0	0	0	0	0	0	0	0	10	10
Eltr. Msmt. Eqt. Mech	0	0	0	0	4	0	0	0	0	4
*Electronics Mech.	0	43	66	92	33	61	46	44	31	416
Eltr. Mech. (Maint.)	0	6	0	21	5	9	14	12	0	67
Electroplater	0	0	0	3	4	0	0	18	0	25
Fabric Worker	0	7	0	14	8	1	8	10	15	63
Fire Contrl. Mech.	0	0	33	0	24	25	0	0	0	82
Hvy. Mobile Eqt. Mech.	0	2	9	15	2	0	13	6	0	47
*Inside Machinist	1	74	59	146	61	58	70	87	113	669
Instrument Mech.	0	5	3	0	2	0	0	0	0	10
Indust. Mach. Mech.	0	0	4	0	0	0	0	0	0	4
Insulator	0	9	26	21	16	30	21	40	27	190
Joiner	0	0	0	0	0	0	0	0	0	0
Machinist (Maint.)	0	7	0	36	19	11	16	6	9	104
Machinist (Ord.)	0	0	0	0	0	22	11	0	0	33
Marine Mach. Mech.	0	0	90	0	0	0	0	0	0	90
Metal Inspector	0	5	0	35	5	6	0	0	6	57
Millman	0	0	0	0	1	0	0	0	0	1
Metal Fabricator	0	0	0	4	0	0	0	0	0	4
Molder/Blacksmith	0	12	6	4	5	12	2	5	15	61
Optical Instr. Rep.	0	0	0	0	8	0	0	0	0	8
Ord. Eqt. Mech.	1	0	0	0	0	0	0	0	0	1
*Outside Mach.	0	69	0	120	72	64	66	89	116	596
Painter	0	18	25	27	9	19	36	41	32	207
Patternmaker	0	0	3	4	1	0	0	1	3	12
*Pipefitter	0	157	154	132	104	62	98	92	75	874
Prod. Mach. Mech.	0	0	11	0	0	0	0	0	0	11
Proplr. Mach.	0	0	9	0	0	0	0	0	0	9
Rigger	0	12	33	62	39	22	53	36	33	290
Sheetmetal Mech.	0	29	81	68	45	49	53	81	42	448
*Shipfitter	0	47	97	85	46	67	89	75	51	557
Shipwright	0	7	10	28	11	24	27	22	22	151
Plastic Fabricator	0	0	10	0	0	0	0	0	0	10
Toolmaker	0	2	0	0	14	0	0	12	0	28
Toolroom Mech.	0	0	0	0	0	0	0	0	9	9
*Welder	0	55	120	80	50	65	52	73	45	540
Wharf Builder	0	0	0	2	0	0	0	0	0	2
Woodcraftsmen	0	7	0	28	7	0	0	20	21	83
TOTAL	2	688	1053	1285	692	723	782	920	761	6906

* Critical skill shortage

PRIVATE SHIPYARD OVERHAULS

QUESTION: What action is the Navy considering to overcome salary problems that impact on the hiring and retention of specific skills at the shipyards?

ANSWER:

1. Navy action being considered to overcome salary problems that impact on the hiring and retention of specific skills at the shipyards:
   a. Accelerated promotions for Shift Test Engineers (Nuclear based on training program agreement).
   b. Extension of direct hire authority for engineers to include GS-12.
   c. Special salary rates for welding engineers.
   d. Adjustments for pay inversion situations between supervisors and subordinates.
   e. New method to determine pay for scientists and engineers.
   f. Locality wage system for General Service (GS) employees.
2. Exisiting Navy action to overcome salary problems that impact on the hiring and retention of specific skills at the shipyards:
   a. Additional annual compensation for chief test engineers (CTE), assistant CTE, and Chief refueling engineers.
   b. Special salary rates for radiological control monitors at two shipyards.
   c. Engineer Development Program for paid academic studies in engineering.
   d. Advanced in-hiring rates for engineers based on superior qualifications.
   e. Financial assistance given to current employees seeking postgraduate education in engineering.
   f. Use of the Upward Mobility Program to fill engineering technician jobs.

QUESTION: With the scheduled workload that is at 100 percent of the shipyard capacity and requires the use of large numbers of temporary employees and a considerable level of overtime, what is the likelihood that public shipyards will be able to handle emergent repairs even at a low level of activity?

ANSWER: A reserve of manpower capacity is explicitly scheduled in each naval shipyard to perform emergent ship maintenance. This level of effort is based on historical levels of work previously required plus unique anticipated changes based on planned fleet operational requirements. This level of workforce is available for both voyage repairs, emergency drydocking and other high priority ship repair.

Futhermore, this planned level of capacity is included within the constrained level of permanent and temporary budgeted overtime. If fleet requirements so demand, the level of overtime can be selectively increased to respond to urgent fleet needs.

QUESTION: To what extent will such repairs be accomplished in the private sector? What assurances are there that the private yards will have the flexibility to respond immediately to the problem?
ANSWER: Because the nature and complexity of emergent work varies widely, the extent to which this work is accomplished in the private sector is not quantifiable. However, emergent repairs are assigned to qualified private master ship repair contract holders when the qualification of such contractors is appropriate for the work involved. Some emergent work of this type is underway almost continually in all areas of major fleet concentration. Such emergent work is, however, judiciously assigned so as not to interfere with scheduled on-going overhauls and SRA's in the private sector.

The naval shipyards remain the primary source of expertise, skill and capacity for solving critical fleet repair requirements. Consequently, it is not private yards, but rather the naval shipyards which would be expected to have the flexibility to respond immediately to emergent fleet needs.

QUESTION: If stripping skilled workmen from ongoing overhaul work is required to accomplish emergent repairs, what action will be taken to minimize the impact on crew readiness -- since overhaul will be proceeding concurrent with efforts of ship's force to conduct training and prepare for departure?
ANSWER: A manpower reserve is programmed to acomplish emergent repairs with the objective of minimizing impact on overhauls. However, in those cases where the potential for adverse impact on crew readiness and work exist, schedules are modified to minimizes this impact. A variety of resources are available to assist the crew in their training and repair responsibilities concurrent with shipyard work during overhaul. For example some jobs initially assigned to ships force for repair may be transferred to the shipyard for accomplishment to allow the crew to concentrate more on training. Additionally, type commander assistance teams are available to provide training assistance and assessment of ships force capability. In some circumstances, intermediate level maintenance resources can be used to assist ships force.

QUESTION: What level of emergent repairs has been experienced in past years?
ANSWER: Approximately 300,000 mandays annually are provided to the fleet for short term repair in naval shipyards. This includes not only type commander restricted and technical availabilities beyond those formally scheduled selected restricted availabilities (SRA's), but also all voyage repairs, emergency drydocking and other critical repair actions.

SUBCONTRACTOR CAPACITY-OVERHAULS

QUESTION: Since failure to assure that subcontractors are not overloaded with other commitments could adversely affect the prime contractor's ability to successfully complete an overhaul/repair in a timely and cost-effective manner, does the Navy consider other commitments of subcontractors in the preaward survey?
ANSWER: Utilization of subcontractors by MSR (Prime) contractors is an area that receives close review during pre-award surveys for overhaul/repair job orders. The prospective prime contractor is required to submit to the SUPSHIP a list of proposed sub-contractors to be used for specific portions of a job order. A review is made of the capacity and capability of the sub-contractor to perform utilizing the SUPSHIP's current knowledge of the sub-contractor's commitment to other contracts and past performance on previous contracts. If a proposed sub-contractor is unfamiliar to the SUPSHIP, more specific information is requested from the prime contractor. All deficiencies are referred to the prime for resolution. Failure to correct any major deficiencies with sub-contractors may result in a pre-award survey finding of "non-responsibility" and no award of the contract.

QUESTION: Does the Navy know the extent to which combat system and electronics subcontractors currently rely on moonlighters from naval yards or ship forces? To what extent?
ANSWER: The Navy does not currently know the extent to which combat systems and electronic sub-contractors rely on moonlighters from Naval yards or ship's force. However, it is generally known that government personnel do moonlight for combat systems and electronic contractors. Ship's force personnel are not permitted to moonlight on their own ship.

SBA RULE IMPACT

QUESTION: What problems have SBA rules and regulations created for the Navy's ship maintenance and modernization program? What steps has the Navy taken to resolve these problems? Can the committee be of any assistance in this area? If so, how?
ANSWER: SBA appeals to have all or part of ship overhauls set-aside for small business have, on occasion, delayed award and subsequently caused overhaul schedules to be changed.

This appeals process, as prescribed in DAR 1-706.3 describes a series of communications between the DOD agency involved and SBA that could take 30 days or longer to resolve, particularly if the appeal must finally be resolved by the "Secretary of the department concerned."

There is little that the Navy can do in this area. NAVSEA and the SUPSHIPS are getting written justification from Fleet Commanders when schedule and/or work requirements preclude total or partial small business set asides. However, this does not stop SBA offices from appealing the Navy's actions.

The committee could review this situation to see if any actions could be taken to modify applicable statutes and/or rules and regulations of the SBA.

Adequate Pool of Skilled Craftsmen

QUESTION: What has the Navy done to ensure that as more combatant class ships are shifted from the public to private shipyards, an adequate pool of skilled craftsmen will be available to accomplish the required work?

ANSWER: At the midpoint of the Fiscal Year, a planning conference is held at which tentative assignments are made to both public and private yards. When these assignments are confirmed (subject to change if emergent conditions arise), industry is advised, in meetings with the Naval Sea Systems Command and their field offices, of the amount of work forecast for each contractor's area. With this advance information, contractors can then make the commitments necessary to obtain and retain the skilled craftsmen who will be needed to perform the work assigned to the private sector. In the pre-award review, which is conducted prior to the award of any ship overhaul or contract, the availability of skilled manpower is used as a major factor in determining the responsibility and capability of a contractor to receive a contract award.

SUBCONTRACTOR CAPACITY

QUESTION: Has consideration been given to providing electronic subcontractors access to some of the Navy's technical training courses and facilities?

ANSWER: The types of training which would be appropriate for electronic subcontractors are provided by shipboard systems and equipment vendors and by the Naval Education and Training Command. These courses are made available to electronic subcontractors.

Competition for Complex Ship Overhauls

QUESTION: How will the Navy assure that they receive adequate competition for complex ship overhauls using request for proposal procedures?

ANSWER: Prior to issuing a Request for Proposal (RFP) for a ship overhaul, the contracting officer sends a Procurement Interest Letter to prospective contractors to ascertain interest. In this manner the contracting officer ensures that sufficient competition will be available for a solicitation prior to issue of the RFP.

QUESTION: Is it anticipated that the contractor offers for complex overhauls will be "competitive" to Naval Shipyards?

ANSWER: Presuming the question addresses "competitive" in cost, time and quality, it is felt at this time that private sector capacity to handle complex overhauls on a competitive basis with naval shipyards is somewhat limited. However, this capacity is increasing as more complex overhauls are being completed in the private sector. The Navy is confident that there is adequate capacity in the private sector to handle the complex overhauls tentatively assigned in FY 1983.

DD 963 OVERHAUL TIME AND COSTS

QUESTION: In view of the historical trend of late overhaul completions and cost growths for ships which have been overhauled in the private shipyards for the first time, what efforts has the Navy made to insure that the DD-963s recently assigned to the private sector are overhauled on time and within projected costs?

ANSWER: The four contracts awarded to date for overhauls of DD-963s have all utilized Request for Proposals (RFPs) and resulted in a Cost Plus Award Fee (CPAF) contracts. By using a RFP, the Navy was able to measure the relative merits of the various contractors to perform on time work within projected costs. These considerations were then factors in selecting the successful contractors. The CPAF contracts were structured so that the award fee earned by the contractor performing each overhaul is determined by the Navy. This determination is predicated upon the Navy's assessment of the contractors performance in schedule adherence, quality control, and cost control. Thus, it is the Navy's belief that by using RFPs and CPAF contracts, the Navy obtains greatly improved cost and schedule control.

Ship Alterations Materials

QUESTION: Does the Navy believe that the $117 million scope reduction in alteration work will adversely impact fleet capability? If so, by how much?

ANSWER: During the budget process the Navy was faced with funding constraints which necessitated that the Fleet Modernization Program in fiscal year 1983 be reduced in order to ensure accomplishment of a balanced level of both maintenance and modernization consistent with fleet requirements and available funds. While the overall program was reduced the $117 million does not represent a funding cut on individual ships because this figure was derived by comparing funding levels for the various types of ships in fiscal year 1982 and 1983. While useful as an indicator this figure cannot be correlated to actual funding or scope reduction as the fiscal 1983 program has different classes of ships within the types used to categorize program scope. Additionally, the actual alterations on ships of the same class vary in both quantity and scope. Therefore the funding comparisons cannot be used as a measure of fleet capability change from one year to the next. By policy Navy defers those alterations that normally include little if any OPN equipment, such as habitabilty, reliability or maintainability improvement alterations. Accordingly, the reduction in the FMP for FY 83 did not result in any significant amount of uninstalled OPN equipment, which could serve as the basis for any FY 83 OPN reduction.

QUESTION: What is the basis of the Navy's belief that the alteration material already procured will not be obsolete when it gets finally installed during FYs 1985 to 1987? Please provide specific data on major categories of material procured and the obsolescence factor associated with each category.

ANSWER: The fiscal year 83 Fleet Modernization Program as currently structured will support installation of procured alteration material as scheduled without requiring major deferrals into other fiscal years. As a general rule alterations deferred due to funding reductions are labor intensive vice equipment oriented.

Rationale for this policy is that equipment intensive alterations are associated with urgently needed combat system upgrades or major readiness fixes. Deferred labor intensive alterations usually have short lead time materials much of it shipyard furnished. If deferred, these type alterations have minimal material carryover and can be rescheduled on short notice if funds become available. Additionally, these type alteration can usually be accomplished in availabilities outside regular scheduled overhauls which greatly reduces deferral time. It should also be noted that alteration material does not become obsolete. Even under ideal conditions it takes several years to complete fleetwide accomplishment of a specific alteration. For example, the installation schedule for the AN/SPG-65 radar system is from FY 81-90, the HARPOON Missile System from FY 80-87. These long term installation schedules result from extended procurements and longer intervals between overhauls (84 months on SSN 637). There are no specific obsolescence factors associated with alteration categories and most alterations are expected to be effective for at least a decade after installation. However, equipment may be modified prior to or after installation to keep it current with associated threats and state of art technology.

QUESTION: How realistic is the Navy's assumption that it will be able to catch up in FY 1985 with the installation of materials and equipment already procured with FY 1981 funds since it also has to install equipment and material procured during FY 1983 during that time period?

ANSWER: The fiscal year 83 Fleet Modernization Program (FMP) will support installation of procured material as scheduled without carryovers into 1985. The majority of alterations being deferred to meet program reductions are labor intensive with short lead time material requirements. Deferring these type alterations not only prevents stockpiling of material but also allows reprogramming on short notice if funds become available. It should also be noted that alteration material does not become obsolete. The FMP contains alterations which provide weapons system upgrades, reliability and maintainability fixes and other installations which are required now and will continue to be required until the entire fleet or class is backfitted. Even under ideal conditions it takes several years to complete installation of a given alteration due primarily to extended overhaul intervals (84 months in SSN 637). Accordingly, alterations are not developed unless long term effectiveness is assured. In most cases deferred alteration material is used in the near term either on the original ship or to support accomplishment of the same alteration on another ship.

QUESTION: What would be lost to the process should Congress reduce the Navy's FY 1983 procurement request to ensure installation of the material procured in FY 1981?

ANSWER: The FY 1983 Fleet Modernization Program is currently budgeted to support installation of FY 81 procurements on schedule. A reduction in the Navy's FY 1983 procurement request would therefore result in non-accomplishment of urgently required combat system upgrades, safety and reliability alterations.

NUCLEAR QUALIFICATION

QUESTION: Based on the Navy's current and projected nuclear ships repair and construction workloads, what is the shortfall in capacity and capability at each nuclear capable shipyard? What plans does the Navy have for making up these shortfalls? Please be specific.

ANSWER: The capacity and capability of nuclear qualified shipyards are adequate to support the FY 1983 maintenance program for nuclear ships. Nuclear ship overhauls typically require an eighteen month preparation time prior to commencement. This advanced planning time is used for development of the repair and alteration packages, material ordering, facilities preparation and staffing, training, and qualifying the necessary workforce. Each FY 1983 overhaul is well within this advanced planning timeframe. No shortfalls have been identified based on explicit reviews by each naval shipyard assigned to perform nuclear work.

The capacity and capability of Newport News and Electric Boat to construct nuclear ships is adequate to support both on going and the FY 1983 FYDP program submitted to Congress. Newport News has the capability to deliver two SSN's per year in addition to construction of a CVN. Electric Boat can deliver two SSN's and one TRIDENT per year.

QUESTION: From the lessons learned on ENTERPRISE, is the Navy planning to hire, train, and retain nuclear qualified craftsmen, technicians and engineers?

ANSWER: The Navy does not anticipate a significant problem in hiring, training and retention of nuclear qualified personnel. The Navy's efforts are based on longstanding requirements to maintain all nuclear powered submarines and surface ships in the fleet. (Not just as a result of recent experience with the Enterprise). The requirements for nuclear qualified personnel is continuously reviewed in light of projected workload. Current recruitment, training, and requalification programs are considered adequate to support FY 1983 requirements.

Supply Operations

QUESTION: Navy regulations specify that each of the supply centers be surveyed and inventoried annually. Statistics indicate the Navy only completed 57 percent of the location surveys. Why is the Navy letting the inventory problem grow unchecked?

ANSWER: The Navy is not letting the inventory problem grow unchecked. The naval supply centers are now engaged in a major inventory and location survey effort and the Naval Supply Systems Command has developed a detailed plan to improve inventory accuracy at the supply centers. As part of this total effort, 100 percent of the location surveys will be completed in FY 82 and supply center performance will be closely monitored to ensure location survey and inventory requirements are met in the future.

Supply Operations

QUESTION: Is there any evidence to indicate that the $330 million of inventory losses may be attributed to theft?

ANSWER: No. Theft on a small scale, mostly for personal use, does occur. However, studies and covert investigations provide reasonable if not conclusive assurance that theft is not a major contributor to inventory adjustments.

TRIDENT OPERATIONAL SUPPORT

QUESTION: Support costs for the TRIDENT have doubled since FY1981 to over $340 million in FY1983. The current estimate is $120 million more than FY1982 to support exactly three ships in FY1983, assuming prompt delivery of two more TRIDENTs. What actions have been taken to control this operational cost growth?

ANSWER: The TRIDENT program has taken several actions to control as well as reduce operational costs. These include: the use of on-call instead of on-site contractor engineering support, reduced management and consultant support, strict configuration control, preplanned logistic support, controlled travel, deferred hiring, and the use of existing facilities or capabilities whenever possible. These actions, combined with an intensive scrub of the budget by a review team established by the TRIDENT program, have resulted in reductions of almost $100 million to FY1983 alone. Efforts in these areas will continue in the future to ensure that the budget request represents only hard program requirements.

The program growth in FY1983 over earlier years is in large measure attributable to the transition of costs from developmental (RDT&E,N) and procurement accounts to operations (O&M,N). Engineering services and similar support costs previously funded by RDT&E,N as procurement accounts are now budgeted under O&M,N since equipments have been delivered, installed and are currently operating. In addition to this transition, which accounts for an estimated 40% of the increase, the program has changed dramatically in the past three years. For example, in FY1981 the base at Bangor was nearing completion, the logistics support program being developed for TRIDENT was in its initial stages, only a few equipments were operating, training was still in its initial stages, and there were no TRIDENT submarines operating. The FY1983 budget in contrast supports a much different and far more mature program. The base at Bangor is now in operation, the many elements of the logistics support program are either completed or nearing completion, program equipments at test ranges, contractor plants, vendors, and other support facilities are operating and training is now well underway. Another difference which contributes significantly to the increase is the additional efforts associated with planning for Kings Bay, a relatively new initiative.

These factors combine to account for the $120M program growth which includes approximately $40M for the effects of transition from other appropriations, $13M for the effects of inflation, $10M for the new initiatives at Kings Bay and $57M in support of strategic and submarine operating equipment.

MCM SHIP CONSTRUCTION PROGRAM

QUESTION: The budget requests full funding of four mine countermeasures ships, one year behind the lead ship. The traditional Navy shipbuilding pattern has been to plan a one year gap between the lead and follow ships of a class. Why has the Navy deviated from this procurement approach for this ship type?

ANSWER: An acquisition strategy based on a lead ship - one year gap - follow ship profile typifies most Navy ship procurements. This procedure is followed in order to identify and correct any unforeseen problems in the building of large, complex warships. The MCM ship, while not simple, is not as complex as other ship construction projects. As a result, the MCM project can benefit by foregoing the one year gap. Rapid procurement of MCM can aid in the expeditious replacement of aging mine warfare forces and the eventual enhancement of the Navy's mine countermeasures capability.

BUDGET CHANGES

QUESTION: For the first time the Navy is budgeting ship contract design in the shipbuilding program in lieu of R&D. What factors have prompted this transfer?

ANSWER: There are basically two reasons that the ship Contract Design is being transferred from the RDT&E appropriation to the SCN appropriation. These are:

- The ship contract design effort is not developmental in nature
- To improve the coordination of the ship design effort with the shipbuilding program.

Contract Design is the preparation of shipbuilding specifications and drawings documenting, in a biddable form, the results of design decisions and developments completed in earlier phases of ship design. This translation of design studies and trade-off assessment into bid specifications and drawings, is not a developmental process and draws from standardized general specifications and existing commercial, federal, and military specifications.

The current arrangement, funding ship contract design in RDT&E and ship construction in SCN, is unweildly from a management viewpoint. The SCN budget has been subject to fluctuations without corresponding changes in the design budget in RDT&E. Similarly there have been reductions in the RDT&E funded contract design which impact the ability to maintain design effort for fully funded SCN ships programmed in later years than the design work. The funding of both in SCN will improve the execution of the shipbuilding program because there would be a forced coordination of changes in the funding required for design as the funding for the shipbuilding program itself changes.

MANUFACTURING TECHNOLOGY

QUESTION: A new line item called Manufacturing Technology has been introduced into the shipbuilding program. The justifications enunciate glowing objectives, but do not address how the funds will be spent. Please provide some specifics on what the request of $25 million pays for.

ANSWER: The purpose of our request is to effect a modernization of the production equipment, tooling, methods, and facilities used in the construction of Naval ships which results in:

(1) Improved productivity in shipbuilding;
(2) Reduced shipbuilding costs;
(3) Reduced shipbuilding lead-times;
(4) Improved quality and reliability of construction;
(5) Enhanced industrial preparedness posture.

Two types of projects will be pursued:

(1) Product related technology modernization (TechMod)

(2) Generic technology improvement

The TechMod projects relate to specific procurements contemplated in the Navy's Five Year Shipbuilding Plan. These projects are a systematic upgrade of the facilities, equipment, tooling, and methods employed in the construction of the ships in question and continuing benefits to subsequent ships.

The generic, process related technology improvement projects address general purpose production equipment, tooling, and methods.

Planned projects are listed below ($000):

CVN TechMod	3000
CG-51 TechMod	1000
T-AO TechMod	500
MCM TechMod	750
ARS TechMod	750
SSN TechMod	3500
Anchor Chain	100
Robotic Grinding	1500
NC Tape Validation	715
Articulating Robots	2000
Ion Implantation	1000
Laser Surface Mod.	3500
Propeller Grinding	1800
GRP Shipbuilding	1285
Mobile Auto Prop. Meas.	900
Propeller, Shaft, and Rudder Handling	800
Improve Ships Surface Preparation	1000
Plasma MIG Robot	600
Laser Refurbishment of Missile Launcher	300
TOTAL	25000

Shipbuilding Cost Growth Request

QUESTION: Of the $314.2 million requested for cost growth, $139 million has been identified for installation of the vertical launch cruise missile system aboard the SSN 719 through 724. In the October Amendment of the FY 1983 budget, $96 million provided for this same purpose. Please justify the increase, and explain why this isn't redundant funding.

ANSWER: The FY 1982 Congressional Budget Submission assumed that the complete installation of the Vertical Launch System (VLS) on SSN 688 Class Submarines during new construction could not be accomplished on the SSNs 719/720 and only partially accomplished on the SSNs 721/722. Therefore, the VLS costs for efforts not scheduled to be done during the construction period were programmed in the Other Procurement, Navy (OPN) appropriation (FY 1982 $36.0 million and FY 1983 $81.4 million). In addition, the FY 1982 Congressional Request for the Shipbuilding and Conversion, Navy (SCN) appropriation included $60.0 million for non-recurring costs in the FY 1982 SSN full funding line item, $40.0 million in the FY 1982 Cost Growth line item for the FY 1980 SSNs 721 and 722 and $58.0 million in the FY 1983 Cost Growth line item for the FY 1981 SSNs 723/724.

After the initial FY 1982 budget submit the feasibility of installing VLS during new construction for the SSN 719 through 722 was re-evaluated and it was determined that it could be accomplished prior to ship delivery. Therefore, the $60.0 million budgeted in FY 1982 full funding for non-recurring costs and the $36.0 million of FY 1982 OPN funds that was budgeted to partiably fund VLS on SSNs 719 and 720 was transferred to the FY 1982 Cost Growth line as part of the FY 1982 Budget Amendment. The $139.4 million requested in the FY 1983 budget merely reflects the additional transfer of the $81.4 million programmed in FY 1983 OPN and the $58.0 million included in the FY 1983 SCN authorization request.

QUESTION: $43.5 million of cost growth funding is requested for future characteristics changes on the CVN-71. Is this increase associated with the FY 1982 initiative to upgrade the NTDS suite on the CVN-71?

ANSWER: No. The $43.5 million is related to a significant improvement in magazine damage protection which was incorporated into the CVN-71 in early 1981 through a negotiated change to the construction contract. While the technical aspects of this improvement are classified, it represents a major development in further enhancing aircraft carrier survivability and has been incorporated into the technical baseline and budget for CVN-72 and CVN-73. Because the improved damage protection system (IDPS) was not anticipated in the original budget for CVN-71 the funding for this change was taken from the account designated for future characteristics changes (FCC). The FCC account is a normal budgeted category used to fund basic characteristic changes to the ship which result from technological or other improvements that evolve while the ship is being constructed. The account is controlled by CNO and is only used in funding changes specifically authorized by the CNO. The $43.5 million IDPS change almost totally depleted the CVN-71 FCC account. Therefore this request for cost growth is to replenish the FCC account to a level consistent with its originally budgeted estimate. This will insure that as future technology and other changes develop there will be sufficient FCC funds available to incorporate them into CVN-71 as deemed appropriate by CNO.

OHIO CLASS $182.6 MILLION PRIOR YEAR COST GROWTH

QUESTION: The FY1982 supplemental and FY1983 request includes a combined $182.6 million for prior year cost growth on the TRIDENT program. What factors have led to this repriced estimate?

ANSWER: The FY 1982 supplemental and FY 1983 request includes a combined total of $197.7 million for prior year cost growth on the TRIDENT program. In 1981 the Navy adjusted its cost estimates for the FY 1978 and prior OHIO Class Submarines based upon revised ship delivery dates established in March 1981. The $197.7 million of Cost Growth is comprised of time related construction support services such as design and vendor engineering services.

T-AO (Fleet Oiler)

QUESTION: The supplemental request includes $58 million for cost growth on the T-AO oiler program. How much of this increase is attributed to the multi-year procurement initiative and how much is attributed to a repricing of the end cost estimate:

ANSWER: All of the $58 million supplemental request is attributed to the repricing of the end cost estimate, none of it is attributed to the multi-year procurement initiative. We are, however, going to incorporate some of the features of multi-year contracting into these programs inasmuch as the FY 1982 and FY 1983 ships will be awarded together with the advance procurement for the FY 1984 ships.

SHIPBUILDING COST GROWTH REQUEST

QUESTION: A total of $80 million is requested in the supplemental to cover the start-up costs of a second source for the CG 47 AEGIS Program. The decision to second source this program was made last year. Wasn't the cost of start-up of a second yard factored into the end cost estimate of the ships funded in the FY82 regular bill? If not, why not?

ANSWER: The decision to second source was not made in time to include cost estimates in the FY82 budget submit.

Supplemental for Reappropriation of FY 1978

QUESTION: A total of $343.7 million is requested in the supplemental for reappropriation of the FY 1978 program. For the record, please submit a detailed breakout of this requirement by ship type. Presuming that the requested reappropriation covers new scope obligational authority, why is this estimate 3½ times the FY 1976 or FY 1977 program extension requests?

ANSWER: The ship type breakout of the $343.7 million requested in the supplemental for reappropriation is as follows:

($ in millions)

PROGRAM	NEW SCOPE	ESCAL. ON BASIC	BASIC CONSTRUCTION CONTRACT CHANGES	OTHER A/	TOTAL
TRIDENT	63.9	79.3	-	-	143.2
SSN 688	12.0	14.7	4.4	3.6	34.7
CG 47	28.8	-	-	10.0	38.8
FFG	54.0	23.0	7.0	9.5	93.5
AO	17.5	9.8	3.5	2.7	33.5
TOTAL	176.2	126.8	14.9	25.8	343.7

A/ Engineering Change Proposals (ECP) and price variances on Government Furnished Equipment (GFE)

The $343.7 million reapportionment request included in the supplemental was based on the total estimated unobligated balances at the end of FY 1982, for both new scope and within scope requirements. The FY 1976 and FY 1977 program extensions were for $96.8 million and $119.0 million respectively. These extensions were for new scope effort only. A comparative estimate for new scope requirements for the FY 1978 program is $176.2 million. The FY 1978 program extension is greater than previous years because of the different ship type mix and work remaining to be accomplished. For example, the FY 1978 program includes two TRIDENT Submarines vice one and AEGIS Cruiser program also started in FY 1978. Since the Department of Defense request in FY 1983 is for a seven year appropriation for Shipbuilding and Conversion, Navy, reappropriation of the entire projected unobligated balance for the FY 1978 appropriation would be an appropriate extension of the request for a seven year appropriation.

INDEPENDENCE SLEP

QUESTION: Advance procurement funding of $163 million is requested in support of the planned FY 1985 Service Life Extension of the INDEPENDENCE. Why are funds required two years in advance?

ANSWER: Funding is required two years in advance in order to ensure that material having up to a two-year manufacturing lead time is procured and delivered to the industrial site to arrive at the industrial activity by commencement of the industrial effort.

AIR CUSHION VEHICLES

QUESTION: What R&D initiatives are being taken in FY83 to support product improvements to the Landing Craft Air Cushion (LCAC) Program?

ANSWER: The Amphibious Assault Landing Craft (AALC) Program is the RDT&E Program which directly supports the LCAC Program. AALC JEFF craft testing in FY83 is oriented towards providing direct design and verification support for the LCAC as well as longer term product improvements for the LCAC which will yield pay-offs by reducing maintenance and acquisition costs. The longer term product improvement efforts include development of an improved skirt system which, if successful, would lower the weight, cost and maintenance of the skirt while maintaining or improving the baseline LCAC performance. Infrared suppression techniques are also being investigated in FY83 that would lower craft vulnerability to IR weapons. Vibration monitoring techniques are also being investigated which would lead to on-condition machinery health monitoring which should pay-off in the long run with lower craft machinery maintenance requirements. Additional efforts include work in the MEDEVAC and troop transport mission areas as well as in subsystem improvements such as air filtration system, use of composite structures and in skirt materials.

QUESTION: The GAO cites LCAC disadvantages as being high unit cost, increased maintenance and necessary modifications to existing ships. Do we have a firm grasp of the cost of operating and maintaining LCACs.

ANSWER: There is a firm basis for projections of LCAC operating and maintenance costs. Four years of successful operation of the development craft, at the Navy's Experimental Trials Unit at Panama City, FL have provided data and hands on Navy experience in operation and maintenance. This data contributes to establishing an accurate base to project LCAC O&M costs.

Interface tests successfully conducted with both the LSD-32 and the LPD-4 have clearly demonstrated the ability of the LCAC to operate with existing well deck ships with only minimum ship modifications.

QUESTION: What is the 20 year life cycle cost of the LCAC program?

ANSWER: Assuming a 20 year useful life and a total procurement of 107 craft, the current estimate for lift cycle cost is $4,800M in FY82 dollars. This estimate includes all past and projected research and development, procurement, military construction, operating and support and personnel costs associated with the LCAC program.

QUESTION: What technical problems remain to be resolved in the LCAC program?

ANSWER: The LCAC design is based upon technology developed under the Amphibious Assault Landing Craft (AALC) program and is considered to be low risk. Continuing development tests with the AALC JEFF craft are in progress and are planned to reduce maintenance and acquisition costs as well as to improve craft performance. Examples of these efforts include improved erosion protection for the propellers, final development of the craft spray suppression skirts, control simplifications to reduce operator workload and training time, skirt system improvements and LCAC subsystem hardware proveout. These tests are geared to support the LCAC design and verification program.

QUESTION: The Navy is now studying the LM-500 engine as a potential alternative to the TF-40B engine. What advantages would the LM-500 have for amphibious landings?

ANSWER: The prime contractor for the LCAC, Bell Aerospace Textron, has selected the TF-40B engine after conducting extensive trade-offs as part of their design effort. Many factors were considered including; engine power, craft performance, engine experience, maintenance and cost. The TF-40B satisfied all requirements at lowest craft cost.

QUESTION: Is the LM-500 included in the cost analyses you have done on the LCAC?

ANSWER: Cost was one of the many factors considered by the prime contractor, Bell Aerospace Textron, in selecting the LCAC engine. The TF-40B was the lowest cost alternative to the LM-500 and was selected for the LCAC.

QUESTION: Do you consider LCAC a Major Acquisition program? Why is it not included in the Selected Acquisition Report system?

ANSWER: The LCAC program was designed as an Acquisition Category IIS (ACAT IIS) program by the Under Secretary of Defense (R&E) on 10 June 1981. ACT IIS programs are not included in the Selected Acquisition Report System.

DDG 51

QUESTION: At what time in the future do we begin to have a drawdown in our cruiser/destroyer force levels? How will development of the DDG 51 enable the Navy to meet its 1990s force level objectives?

ANSWER: The first of the Navy's battle group capable surface combatants begin to reach the end of their normal service lives starting in FY 1990. For this reason, development of the DDG 51 becomes critical, not only as a replacement for ships being retired, but also as a force builder. The DDG 51 is a major element in our effort to distribute offensive power and defeat growing Soviet capabilities at sea. Designed with a derivative AEGIS combat system and vertical launch STANDARD and cruise missiles, it will be a powerful and survivable ship, complementing the more capable CG 47 class AEGIS cruiser within the overall battle group battle management scheme. The battle group composition of the 1990s will consist of two CG 47 class cruisers, two DDG 51 class guided missile destroyers, and two DD 963 class general purpose destroyers to provide combatant support for the aircraft carrier. In building to the Navy's minimum force level objective of 137 battle group capable combatants, construction of the DDG 51 class at programmed rates is vital, because until the DDG 51 delivers in adequate quantities, it will be necessary for the Navy to selectively extend the service lives of CG/CGN and DDG 37 class ships, as well as use older and/or less capable ships in the battle groups, to achieve our minimum force level objective in the 1990s.

QUESTION: Please outline for the Subcommittee the cost, weight and weapons system difference between the DDG 51 and a CG 47 Cruiser.

ANSWER: In FY-1983 dollars, an average DDG 51 costs about 75 percent of an average CG 47. It also will displace about 1000 LT less. The significant weapons system differences are:

- In DDG 51 the SPY-1 Radar will have less quantity capability and be housed in a single deckhouse.
- DDG 51 will have three instead of four illuminators.
- DDG 51 will have one-half of the CG 47's transmitters.
- DDG 51 will carry less ammunition.
- DDG 51 will not have an embarked helo as in CG 47.
- CG 47 will accommodate the embarked Battle Group AAW Commander and act as force coordinator; DDG 51 will act as a participant.

QUESTION: What changes have been made to the DDG 51 development program since last year?

ANSWER: It is essentially the same with these exceptions:

- A thermal crossconnect instead of electric crossconnect will be used in the propulsion system in order to reduce cost and weight, and achieve 30 knots speed.
- Towed Array Sonar has been added.
- Gas turbine generators instead of diesel generators.
- Electro-optical Fire Control System has been design budgeted into the baseline.

QUESTION: What DDG 51 sub-systems are to be included which will result in reduced operating costs?

ANSWER: More efficient propulsion and electrical generating systems. These include upgraded LM 2500 gas turbine engines, reverse reduction gear, Allison K34 gas turbine generators, and the Rankine Cycle Energy Recovery System (RACER).

QUESTION: How will the Rankine Cycle Energy Recovery (RACER) propulsion system increase DDG-51 fuel efficiency? At the current rate of funding for RACER, will it be able to be deployed on the DDG-51 ship?

ANSWER: The RACER System recovers waste heat from the exhaust gas of the LM 2500 Gas Turbine Engines and generates steam for use in a steam propulsion turbine to realize increased efficiency at a given speed. The current funding profile for the RACER System will not make RACER available for DDG-51. The House addition of $8 million in FY-1983 will preserve the option to install RACER in the lead DDG-51.

QUESTION: Both Armed Services Committees have provided additional authorization for the Ship Systems Engineering Standards (SSES) program. Several SSES concepts are now incorporated into the DDG-51 design. Does the Navy need these additional FY-83 funds for the SSES program? Were they original Navy requests?

ANSWER: The original Navy request was $1.7 million for the SSES program. The additional funding will accelerate the development of the Ship System Engineering Standards in order that they will be available for possible incorporation into the DDG-51 Preliminary Design. The DDG-51 is being substituted for the Mid-Size Combatant (MSC) and it will serve as the platform for the final development of the mid-size standards, just as the the MSC did in the past. The detail design of those standards incorporated into the DDG-51 will be completed in FY 1984. Further application of the standards into small and large size combatants is underway.

QUESTION: The House Armed Services Committee has added another $10.0 million for R&D on the AN/SQS-53 Sonar. The Committee understands that the Navy is considering a below threshold reprogramming for the AN/SQS-53 Sonar in FY-82, and that the program is underfunded by $21.7 million in FY-83 if it is to be ready for the lead DDG 51 ship. Why does the discrepancy exist between the DDG 51 program schedule and the AN/SQS-53C Sonar schedule?

ANSWER: A discrepancy exists between the DDG 51 program schedule and the AN/SQS-53C Sonar schedule because of a reduction in FY-82 funding by Congress.

QUESTION: Why is it so important to have either RACER or the AN/SQS-53C Sonar ready for the lead DDG 51 ship?

ANSWER: The RACER system promises to improve energy efficiency by almost 25 percent. The AN/SQS-53C Sonar is smaller than earlier variants while increasing the ship's capability against submarines. DDG 51 can accommodate the AN/SQS-53B if the "C" version is not ready.

QUESTION: Will the SEAFIRE electro-optical fire-control system be on the DDG 51?

ANSWER: The Navy terminated the SEAFIRE/Guided Projectile Program due to the fact that the cost to procure these systems exceeded affordability limits. SEAFIRE is design budgeted in DDG 51 so that the ship can accommodate this system when available/approved.

SEAFIRE

QUESTION: Haven't both Armed Services Committees directed that SEAFIRE development continue? Will the Navy follow that direction this year, if funds are appropriated for SEAFIRE?

ANSWER: The House Armed Services Committee recommended continuation. The Senate Armed Services Committee recommended continuation and denied the Navy's FY 82 supplemental which requested reprogramming of SEAFIRE funds. The Navy will comply with the statutory provisions passed by Congress.

QUESTION: What other Navy surface vessel could use SEAFIRE?

ANSWER: The SEAFIRE, with it's guided projectile illumination capability, theoretically can be integrated into combat systems on the DD 963/993, CGN 36/38, CG 47, DDG 51 and LHA-1 class ships, however it was not intended to install SEAFIRE on the CGN 36/38, CG-47 and LHA-1 classes because these ships are not intended to as primary Naval Gunfire Support ships.

1984 POM

QUESTION: Does the Navy have funding in the 1984 POM for design of either a new class submarine or frigate?

ANSWER: In the development of POM-84, there is no funding in FY-84 for design of either a new class submarine or frigate.

Manufacturing Technology Evaluation

QUESTION: The FY 1983 budget requests $25.0 million for manufacturing technology, or MANTECH programs. When will the Navy complete its evaluation on future applications of MANTECH productivity improvements to the entire shipbuilding program?

ANSWER: Available FY 82 funding limited the initial evaluation to the first seven yards (out of 18) expressing interest. The evaluation of these seven representative yards will be completed in October of 1982. The remaining yards will then be studied with final completion of the evaluation coming in February, 1983.

QUESTIONS SUBMITTED BY SENATOR STENNIS

CG-51

QUESTION: The fiscal year 1982 Supplemental request includes $80 million to proceed with the Navy plan to second-source the CG 51 AEGIS Cruiser. The House Armed Services Committee has recommended that these funds be included in the fiscal year 1983 program. What would this do to your schedule?

ANSWER: The $80 million is needed now in order not to jeopardize the integrity of schedule of CG 51. The FY-1982 Supplemental, therefore, is the bill which is perferred.

Question: In addition to maintianing a viable shipbuilding industrial base, what other benefits will accrue to the Navy by second-sourcing the CG 51?

ANSWER: A second or even a third shipbuilder:

- Increase the number of shipyards experienced in building the major and high technology surface combatants including DDG's.
- Disperses our industrial capability as protection against catastrophe and mobilization.
- Gives a broader geographical base for overhauling and repairing major surface combatants - CG/DDG.
- Provides a competition hedge for quality and price control in construction.

QUESTION: When is contract award scheduled?

ANSWER: May 1982.

DDG-51

Question: There is a continued concern over various component systems to be included in the DDG-51 Class Guided Missile Destroyer Design. These include RACER, SEAFIRE, and the 5" Guided Projectile. Do you believe that decisions on these systems can be settled in time to preclude slippage of the DDG 51 schedule?

Answer: Yes. A final decision on RACER is not required until 1985. We are pushing hard to make the lead ship. Parallel propulsion systems designs will be pursued to minimize development risk. Reservations for SEAFIRE and the 5" Guided Projectile have been made in the DDG 51 design so that the ship can accommodate the installation when available/approved.

Question: Tell us about the RACER program and its ambitious fuel-saving capability. Do you believe this program can be ready in time to meet the DDG 51 schedule?

Answer: The Ranking Cycle Energy Recovery System makes use of a stream bottoming cycle to recover exhaust head from LM 2500 gas turbines to augment the main propulsion system through a stream turbine. This may result in an energy saving of 25 percent. With proper funding, the program is capable of meeting DDG 51's schedule.

Question: The SEAFIRE laser designator and the 5" guided projectile programs are of vital interest to the Marines for their amphibious operations. What other alternatives does the Navy have to support these operations in the event SEAFIRE and the 5" projectile are not included in the DDG 551 Class destroyer?

Answer: The Navy is vitally concerned about providing adequate fire support for the Marines. However, enemy antiship missiles are forcing us to increase our ships' standoff range from defended coastal areas. For years we have been developing the ability to do this, by funding the LHA class with its larger flight decks and boat wells; by improving our ship-to-shore vertical envelopment capability through the CH-53E program; and by radically improving our across-the-beach assault capability through the air-cushion landing craft (LCAC) program. These capabilities will be further expanded in the future by our new LHD-1 amphibious assault ship program and our joint vertical-lift aircraft program (JVX) to replace Marine assault helos. We are carrying out a wide range of R&D programs e.g., AV-8B, F/A-18, LASER MAVERICK, I^{2}R MAVERICK, HELLFIRE, the Marines' Light Armored Vehicle and Mobile Protected Gun programs, TOMAHAWK Land-Attack Missiles (TLAMS) fired from Vertical Launch Systems, Battleship recommissioning, and others. Thus, we are already well underway with the listed wide range of fire support alternatives to offset the loss of SEAFIRE on the DDG 51 class.

Multi-yearing the FFG-7

QUESTION: Funding for the final 12 FFG-7 class frigates are contained in the Navy's Five Year Plan. Would it be your opinion that substantial sums could be saved if this buy were authorized under multi-year procurement procedures? Would you feel that this buy meets the guidelines specified under the multi-year procurement procedures?

ANSWER: The FFG-7 program is one of the Navy's most mature and successful programs. Originally three shipyards were involved in the program. Now there are two; Bath Ironworks and Todd, Los Angeles. These yards have built a significant number of FFGs and therefore are well down the learning curve. We also have used and continue to use central procurement of major components. These are two of the major benefits normally gained from multi-year procurement. To realize any additional benefits from multi-year procurement, all the remaining ships would have to be placed under one multi-year contract. However, in order to maintain the industrial base for these types of ships, our current planning would be to keep at least two shipyards involved in the program. This would tend to minimize the benefits of multi-year contracting. For these reasons, the FFG program has not been requested as a multi-year procurement. As other ship contracts are awarded which may change the status of the industrial base, this position will be reviewed.

MK 92 FIRE CONTROL SYSTEM

QUESTION: Original plans called for an upgraded version of the MK 92 Fire Control System to be incorporated on the FFG-7 Destroyers as a mid-life improvement. A number of modifications to the MK 92 are being pursued to improve detection and reaction time. Are you satisfied that sufficient consideration has been given to a number of technical characteristics of the improved system, such as weight and space distribution?

ANSWER: We have analyzed extensively a number of "radar only" alternatives for upgrade of the MK 92 Fire Control System and the AAW Capability of the FFG-7. This included both technical and operational characteristics of the improved system. The analysis concluded that the MK 92 upgrade, to include a Coherent Receiver Transmitter (CORT), provided the most cost-effective improvement in military capability. The space and weight distribution is identical and performance in adverse environments is superior to the existing MK 92 FCS.

QUESTION: Where do we stand on the phased array radar phase of the upgrade?

ANSWER: Analysis of possible upgrades to the MK 92 FCS led to the conclusion that only a phased array radar upgrade did not provide any significant cost-effective gain in military capability. As a result, this phase of the upgrade program is not planned. However, the study made it clear that development of a new, more effective AAW Combat System was required for small/medium sized combatants. The Modular Integrated Radar System (MIRS) Program, currently in exploratory development, will provide the requisite AAW system. It is a Phased Array Radar-based AAW Combat System which will contain detection, tracking and illumination capabilities. We intend to transition this program to advanced development during FY 1982 and begin full scale engineering development in FY 1985. It will be designed with FFG-7 weight and space in mind to enable backfit during mid-life improvement. In addition, it will be targeted for future new-construction efforts.

QUESTION: Is it your plan to also include this phase of the upgrade on the FFG-7 improvement package?

ANSWER: The soonest the MIRS Program will be available for installation will be in the early 1990's, which coincides with the FFG-7 mid-life improvement. This is primarily due to the competitive advanced development program and the time required for full scale engineering development.

T-5 REPLACEMENT TANKER PROGRAM

QUESTION: The T-5 replacement tanker program calls for the ships to be privately financed and built in U.S. shipyards and then leased to the Military Sealift Command (MSC). A major issue is whether major components of the ships, such as main propulsion system, will be procured abroad or from domestic manufacturers. Does it have merit to apply a "domestic preference"to the procurement of the main propulsion systems?

ANSWER: No, a "domestic preference" rule should not apply to the procurement of the main propulsion machinery for the new T-5 tankers. Each main engine would cost 50 to 100 per cent more -- that is, up to $5 million per ship. This means an added cost of up to $25 million for the five ships. Longer delivery time of some domestic engines could impact shipbuilding schedules and extend ship delivery dates. Domestic preference would also conflict with agreements between the U.S. and certain "qualifying" countries and would be overly restrictive considering this private sector procurement.

QUESTION: These are the first five ships of a planned total of 12 tankers. Wouldn't a decision to procure the initial five propulsion systems from a foreign source eliminate potential procurement of propulsion systems for the remaining seven ships from domestic manufacturers?

ANSWER: Procurement of the five propulsion systems from a foreign source would not affect remaining procurement since none is planned. There are only five -- not twelve -- of these handy-sized tankers to be built and chartered.

QUESTION: Would you compare the relative advantages of the Japanese slow-speed diesel propulsion system with the U.S. manufactured medium-speed or low-speed diesel engine?

ANSWER: The advantages of the Japanese slow-speed diesel over the U.S. slow-speed diesel are that the Japanese engine costs much less and can be manufactured in a shorter space of time. If the latest engine designs are to be manufactured in the U.S., the time would increase significantly because improvements to the U.S. manufacturing facilities would be required first. As for the advantages of the Japanese slow-speed diesel over the U.S. medium-speed diesel, the Japanese engine still costs slightly less and operates at lower cost because it can burn lower-quality less costly fuels, has a lower consumption rate, and costs less to maintain.

QUESTION: Are you satisfied that a viable industrial base for American main propulsion systems can be maintained in the future if engines for the replacement tanker program are procured abroad?

T-5 REPLACEMENT TANKER PROGRAM

ANSWER: Yes. There are only the five T-5 tankers rather than the twelve that you thought. Also, in regard to other Navy work, Colt Industries of Beloit, Wisconsin, for example, will provide the diesel propulsion plants for the ten LSD-41 class ships planned through 1987 as well as emergency generators on the 17 SSN-688 submarines in Navy's five-year shipbuilding plan. Additionally, Colt, Delaval (Transamerican), and Allis-Chalmers are all competing to supply main propulsion engines on the fleet oiler, T-AO 187 class, which could account for as many as 38 engines (2 on each of 19 ships).

FIREFIGHTING ITEMS

QUESTION: The Navy has had a number of tragic fires on aircraft carriers over the years. The most recent occurred last year on the NIMITZ. Does the Navy have any new approaches or new systems to eliminate or control catastrophic fires on carriers in the future?

ANSWER: The Navy is continually pursuing improved firefighting systems for all Navy ships. The dynamic environment on the flight decks of our aircraft carriers requires that we consider all means possible to eliminate the hazards of fire. Ten specific ship alterations to improve aircraft carrier fire fighting systems have been developed/accelerated for installation in the Navy's aircraft carriers to increase their capability for combating flight deck fires and enhance flight deck safety.

QUESTION: The Navy has had a number of tragic fires on aircraft carriers over the years. The most recent occurred last year on the NIMITZ. The previous fires were exacerbated by burning of fuel and by the explosion and cooking off of ordnance. Do we have the capability to reduce this threat by the rapid cooling of ordnance to eliminate this threat in the future?

ANSWER: The present shipboard firefighting capability fulfills the requirement to cool ordnance and reduce the threat of its heating and possibly exploding. The varied types of ordnance carried by our sea-based aircraft and the myriad aircraft attachments by which they are fastened to aircraft do not lend themselves to a simple solution for rapidly cooling all ordnance on the flight deck. The current aircraft carrier firefighting systems have been designed, along with recently added improvements, to maximize the carrier's capability for cooling ordnance on the flight deck. In addition, the Navy continues to consider emergent proposals for improved designs in a long-term effort to further enhance the carrier's capability to combat flight deck fires.

BATTLESHIP REACTIVATION

QUESTION: There are some reports that incompatibility will exist between the movement of the ship structure caused by the firing of the 16-inch guns on the reactivated battleships and the stability required for storage of the guided missiles. What can you tell us about these reports?

ANSWER: There is no incompatibility between the various components of the battleship's weapons suite such as the 16-inch guns, the cruise missiles, and the embarked aircraft as reported in a recent newspaper article. All will be available for employment by the ship's Commanding Officer as the operational situation dictates.

Port Engineer Concept

QUESTION: What is the current status of the Navy's experiment with the port engineer concept which is a centralized overhaul control method to manage the planning and accomplishment of ship maintenance used by the Military Sealift Command?

ANSWER: Presently two port engineers are being utilized as a part of the pilot phased maintenance program for the Atlantic Fleet Combat Cargo Ships. To date they have overseen three private sector availabilities with the fourth availability presently underway. The development of the functions of the port engineers within the Navy framework has been evolutionary. The first evaluation of the pilot effort has only recently been completed. This evaluation indicates that the increased managment attention applied to each ship through the concept could be beneficial to the Navy in some applications.

Port Engineer Concept

QUESTION: When will the experiment be completed?

ANSWER: The pilot effort is scheduled to continue for about another three years. However, the Navy is proceeding with implementation of the phased maintenance concept, including the use of port engineers, for management of private sector availabilities for other ships. A program is being implemented for Pacific Fleet Combat Cargo Ships in Fiscal Year 1982 and plans are also underway for inclusion of the seven Replenishment Oilers of the AOR-1 Class beginning in Fiscal Year 1984.

QUESTION: To what extent will the Navy ultimately implement the port engineer concept?

ANSWER: The extent to which the port engineer concept will ultimately be implemented has yet to be determined. One major question which must be considered is whether the Navy will be able to hire and retain large numbers of the highly qualified individuals necessary to successfully function as port engineers. Some difficulty has been encountered in attracting such people, particularly in high cost areas. These problems are being addressed at the present time. The extent to which the port engineer concept will be implemented depends, to a large degree, on the ability of the Navy to hire these qualified people.

QUESTION: Have personnel ceilings limited implementation of this concept?

ANSWER: Personnel ceilings are not presently limiting expansion of the concept. Billets required to support planned expansion of the concept to the Fleet Oilers in Fiscal Year 1983 are being taken from within existing resources.

COMPETITIVE BIDDING CONTRACT PROCEDURES

QUESTION: Would you comment on the perception that the competitive bid contracting method is more economical for the less complex ships than negotiated procurement methods?

ANSWER: It is presumed that the question regarding "competitive bid method" alludes to formal advertising utilizing an Invitation for Bid (IFB) as opposed to the negotiation procurement method. The IFB methodology is less costly and time consuming than negotiated procurements using an RFP because fewer Navy personnel are involved in the review process. However, the Navy believes that for more complex overhauls the benefits derived are worth the additional cost and time.

Alternative Contracting Methods

QUESTION: I would also like your comments on the alternative contracting methods which are being tested by the Navy. These methods involve requests for proposals, cost incentives, and multi-ship and multi-year awards.

ANSWER: The traditional contracting methodology for ship overhauls has been the use of an Invitation for Bid (IFB). Within the past two years, NAVSEA has departed from the traditional approach by utilizing a Request for Proposal (RFP). This change is in consonance with a GAO recommendation that the Navy test increased utilization of RFPs for overhaul contracting. Whereas IFBs elicited only a potential contractor's bid or price, the RFP requires contractors to describe their methodology for accomplishing the overhaul. Thus, the Navy can assess the technical acceptability of a contractor's approach rather than award to a contractor solely upon the basis of price. Other departures from past practice include the use of multi-ship contracting and incentivized contracts. With regard to the former, in FY 83 the Navy expects to award seven multi-ship contracts for 30 overhauls to be performed in FY 83-85. Substantial benefits are expected to accrue including production efficiencies, management and purchasing economies, early identification of the overhauling contractor, stabilized contractor work force, and improved configuration contract. Regarding the use of incentivized contracts, several Cost Plus Award Fee (CPAF) contracts have been awarded for the overhaul of Spruance class destroyers. The first two such overhauls are completing in May 82 at which point an analysis will be performed to ascertain the benefits and liabilities derived from these CPAF contracts. The use of multi-year award is presently under evaluation.

OVERHAULS

QUESTION: The Navy generates more requirements each year than can be accommodated within a given overhaul period. For example, in 1980, the Navy deferred about 35 percent of the budgeted ship alterations. What was the equivalent percentage deferred in fiscal year 1981?

ANSWER: It is not true that the Navy generates more requirements each year than can be accommodated within a given overhaul period. In fact, the number of alterations accomplished each year is almost exactly the same as the number budgeted. This is not to say that there are no changes to the program. The Fleet Modernization Program is large, complex and dynamic; it not only backfits our ships with urgently required weapons systems upgrades, "black boxes" for emergent operations but it also provides routine fixes to equipments and systems, safety alterations and those ALTs required by Federal Law. It involves about 2200 ALTs per year, over 200 ships and thousands of planning, procurement and installing personnel. The ship modernization budget is austere in that only the highest priority alterations are being accomplished and any reductions will seriously impact on program objective to upgrade Fleet readiness and military preparedness. Latest figures for fiscal year 1981 indicate that less than 30 percent of budgeted alterations were deferred while an equal number of high priority requirements were substituted. Because of the dynamic nature of the program and the time delay between budget submissions and program execution, Navy must be able to substitute high priority alterations to meet changing operational and military requirements.

QUESTION: Would you comment on the effect that rescheduling has on ship overhaul schedules and the effect on the overall readiness of the fleet?

ANSWER: Most alteration rescheduling is caused by changes to ship overhaul schedules. However, most of these deferred overhauls are rescheduled in the near term and the original alteration package restored. In the few exceptions where an overhaul is rescheduled for accomplishment two or three years later, alteration material is normally diverted to another ship for near term accomplishment. In view of alteration rescheduling practices there is minimal impact on ship overhaul schedules and fleet readiness.

QUESTION: What effect will the battleship conversions have on the scheduled overhauls for 1982 and the remainder of the five-year plan?

ANSWER: There were eight ships whose overhauls were effected by the decision to reactivate NEW JERSEY. The overhaul adjustments were acceptable from both a Fleet operational and maintenance program standpoint. They are summarized as follows:

a. USS DOWNES (FF 1070), USS HENRY B. WILSON (DDG 7), USS OLDENDOLF (DD 972), USS MERRILL (DD 976) - reassigned to the private sector for overhaul.

b. USS BERKELEY (DDG 15) - overhaul commencement delayed 4 months in Long Beach Naval Shipyard.

c. USS HEWITT (DD 966) - overhaul duration extended by two and one-half months in Long Beach Naval Shipyard.

d. USS RAMSEY (FFG 2) - overhaul commencement delayed 9 months in Long Beach Naval Shipyard.

e. USS HOLT (FF 1074) - The overhaul was increased by two and one-half months in Pearl Harbor Naval Shipyard to accommodate the ASW/TDS modernization that was originally intended for DOWNES.

The USS IOWA is being solicited in the private sector and has no impact on the overhaul schedule. Funding for the reactivation and modernization for the additional battleships has not yet been approved. Impact for the remainder of the five-year plan for the reactivation of these battleships is not expected to have a significant impact on the overhauls scheduled in the five-year plan.

QUESTION: What are the sunk, or non-recoverable costs annually associated with rescheduling planned and budgeted overhauls?

ANSWER: Non-recoverable costs related to rescheduled overhauls are costs associated with non-transferable design and materials. Since most design effort and materials are transferable, non-recoverable costs associated with rescheduling are negligible. Although exact figures are not available it is estimated that non-recoverable costs amount to $5-7 million annually which is less than 1% of total alteration program.

QUESTION: What was the value of material which was ordered and delivered for the 780 ship alterations which were deferred during FY 1980?

ANSWER: Requested data is not readily retrievable without massive research effort and is significantly beyond the capability of resources which could be devoted to it.

QUESTION: What was done with material ordered and delivered for these deferred alterations?

ANSWER: Material was used for alterations on the same ships at later dates or for the same alteration on other ships in the near term.

QUESTION: Won't some percentage of this material become obsolete before it is finally used?

ANSWER: SHIPALT material does not normally become obsolete. Most alterations deferred are rescheduled for near term accomplishment on the same ship or the material is used to support similar installations on other ships.

QUESTION: $13 million of material was ordered and delivered for the overhaul of the USS CONSTELLATION before the overhaul was rescheduled for fiscal year 1983. How will this material be utilized?

ANSWER: At the time the decision was made to defer the USS CONSTELLATION overhaul to fiscal year 1983, $13 million of material was on order, but only $4.9 million had actually been delivered. Approximately 10% of this delivered material has been diverted to other ships with the remainder in storage awaiting arrival of USS CONSTELLATION.

FLEET OILERS

QUESTION: Fleet oilers are designed to transport and transfer petroleum products to other ships at sea. It is planned that 16 old fleet oilers will be retired and new commercially designed, civilian-manned oilers will be constructed. Have you reevaluated the wartime mission of the oilers and identified methods for enhancement of fleet support?

ANSWER: Included in the on-going reevaluation process are recommendations from a 20 August 1978 GAO report that required the Navy to reexamine the need for a fully capable oiler to perform the wartime shuttle ship mission and the suitability of that oiler to function as a back-up battle group station ship. These recommendations cannot be divorced from each other. Our oiler force requirements are based on projected POL demands in various theaters. Wartime scenarios provide for movement of battle groups within these theaters. The 20-knot, 180,000 barrel oiler satisfies the total POL demand with the fewest number of ships. In the event of a coordinated, high-intensity, prolonged attack, a battle group station ship would have a high probability of suffering disabling damage. Since the battle group's sustainability is particularly sensitive to fuel, an oiler capable of at least 20 knots and a high product transfer rate would be required as a substitute station ship. An oiler incapable of 20 knots sustained and a high transfer rate will not suffice.

With regard to the identification of ways to enhance Fleet support, coordination exists with the commercial sector through the Navy-MARAD Policy Planning Group. OPNAVINST 4700.13C sets forth National Defense Features (NDF) for inclusion on suitable ships. In the case of tankers, these NDF features include a limited fueling at sea capability, coated fuel tanks to enable the tanker to carry refined fuels, POL separation and a cargo discharge capability that would be compatible with oilers and other ships with the fuel hose to receive the fuel. However, the Navy can only suggest that these design features be incorporated. The owner weighs the suggested design features against their ability to enhance the profit-making capability of the ship.

In addition to the Navy's promulgation of national defense features, coordination in operational matters exists. Fuel consolidations with fleet oilers at sea are carried out under the Charger Log Program, and exercises are conducted in which merchant tankers so configured refuel combatants with astern refueling rigs and consolidate with fleet oilers.

Approximately 80 U.S. Flag tankers are equipped with national defense features. In wartime the allocation of all tankers (including NDF tankers) to provide Army, Navy, Air Force and Marine Corps POL resupply will be controlled by the Unified Commanders (CINCLANT/CINCPAC) and JCS and not Navy Fleet Commanders.

QUESTION: Would you comment on the alternatives to new construction which were considered by the Navy?

ANSWER: Alternatives to new construction included tanker conversion and procurement of two British oilers. The procurement option was rejected on the basis of extensive modifications required, age of the ships, and the British oilers' limited capacity. Procurement of just these two ships also would not have redressed a serious force level deficiency.

Tanker conversion was considered but not pursued based on engineering investigation which indicated insufficient intact stability in some loading conditions after conversion; reduction in speed resulting from conversion; and conversion costs. Modifications required to convert a tanker to a fleet oiler are extensive and include:

- Raised UNREP deck.
- Independent steering system.
- UNREP stations for POL/cargo.
- Pump and piping upgrade.
- Electrical power increases.
- Communications suite.
- Enlarged deck house for additional accommodations.
- Hotel service upgrades.
- Segregated ballast system.
- Additional lifeboats.

QUESTION: For example, was conversion of existing commercial tankers considered as an alternative? Why was this approach rejected?

ANSWER: The conversion of commercial tankers was considered; however, the modifications necessary to turn a tanker into an oiler are extensive and expensive. These modifications include:

- Raised UNREP deck.
- Independent steering system.
- UNREP stations for POL/cargo.

- Pump and piping upgrade.
- Electrical power increases.
- Communications suite.
- Enlarge deck house.
- Hotel service upgrade.
- Segregated ballast system.
- Lifeboats.

Engineering investigation showed that a tanker so modified would have insufficient intact stability in both full load and full ballast conditions and suffer reduced capacity due to the modifications. Virtually all commercial tankers have a 16 knot maximum speed and the modifications would have further reduced maximum speed. This speed is incompatible with the 20-knot sustained capability of other replenishment ships and would, consequently, increase the vulnerability of these ships if formed with a converted tanker into an underway replenishment group. A slower speed also increases the total number of shuttle oilers required to replenish battle groups in all theaters.

In addition to the design limitations, the cost of the conversion process further reduced the attraction of the modified commercial design or tanker conversion option. For those reasons, the modified tanker option was rejected.

SUBCOMMITTEE RECESS

Senator STEVENS. Again we appreciate that response with regard to the backlog and how it is being shifted around in terms of the question I asked about the slippages into 1984. Senator Rudman's question is particularly relevant there. We are going to have a subcommittee hearing at 10 a.m. on Thursday, May 6, when we will go into the question of airlift requirements.

Thank you very much.

[Whereupon, at 11:30 a.m., Wednesday, May 5, the subcommittee was recessed to reconvene at 10 a.m., Thursday, May 6.]

LIST OF WITNESSES, COMMUNICATIONS, AND PREPARED STATEMENTS

Page

Burke, Lt. Gen. Kelly H., Deputy Chief of Staff, Research, Development and Acquisition 1
  Prepared statement 20

Carlucci, Hon. Frank, III, Deputy Secretary of Defense 105
  Prepared statement 110
Cooper, Dr. Robert S., Director, Defense Advanced Research Projects Agency... 291
  Prepared statement 295

Davies, Rear Adm. Thomas D., USN (ret.), former Assistant Director, Arms Control Agency 160
  Prepared statement 164
Dawkins, Brig. Gen. Peter M., USA, Deputy Director for Strategy, Plans and Policy 201, 234

Fowler, Vice Adm. E. B., USN, Commander, Naval Sea Systems Command 407, 435
  Biographical sketch 448
  Prepared statement 438

General Accounting Office (International Division), prepared statement by....... 175

Komer, Hon. Robert W., former Ambassador and NATO affairs adviser, Office of the Secretary of Defense 246
  Prepared statement 251

Latham, Donald C., Deputy Under Secretary of Defense for Command, Control, Communications and Intelligence 291
  Prepared statement 299

McCarthy, Brig. Gen. James P., Special Assistant for MX, Deputy Chief of Staff, Research, Development and Acquisition, Headquarters, U.S. Air Force 1
Miller, Rear Adm. R. A., USN, Director of Budget and Reports, Office of the Navy Comptroller 407
Murry, Maj. Gen. C. Emerson, Adjutant General, North Dakota National Guard, prepared statement by 259

Nunneley, Rear Adm. J. K., Director of Ships and Maintenance and Modernization Division DCNO (Logistics) 407

Perle, Hon. Richard N., Assistant Secretary of Defense for International Security Policy 201
  Prepared statement 205
Pfaltzgraff, Dr. Robert L., Jr., president, Institute for Foreign Policy Analysis. 239

Record, Jeffrey, senior fellow, Institute for Foreign Policy Analysis 135
  Prepared statement 137

Sawyer, Hon. George A., Assistant Secretary of the Navy, Shipbuilding and Logistics 407
  Prepared statement 417

Smith, Gen. William Y., USA, Deputy Commander in Chief, U.S. European Command 105, 201, 208

	Page
Prepared statement	210
Sullivan, Leonard, Jr., National Security Consultant	145
Prepared statement	149
Tate, Maj. Gen. Grayson D., Jr., Manager, ballistic missile defense program	39
Biographical sketch	43
Prepared statement	40
Wade, Dr. James P., Jr., Principal Deputy Under Secretary of Defense for Research and Engineering	23
Prepared statement	24
Walters, Vice Adm. R. L., USN, Deputy Chief of Naval Operations (Surface Warfare)	407
Prepared statement	450
West, Francis J., Jr., Assistant Secretary of Defense for International Affairs	105

SUBJECT INDEX

MX MISSILE PROGRAM

Page

- Acquisition, separation, and targeting, 45
- Administration's strategic modernization plan, 4, 21, 24, 29, 52
  - Congressional response to, 4
- Advanced ballistic reentry vehicle (ABRV), 48, 51, 84, 98
- Advanced strategic missile system (ASMS), 63
- Air-mobile system, 14
- Airborne launch control system (ALCS) phase III, 82
- Area-compatible sites, 8
- Armed Services Committee recommendations, 26
- B-1B bomber program, 37
- Ballistic missile defense (BMD), 16, 32, 39
  - Acceleration, 86
  - ATP budget request, 42, 87
  - Baseline system effort, 41
  - Costs, 67
  - Endoatmospheric nonnuclear kill (ENNK), 42, 68
  - Exoatmospheric defense (XD), 42, 73
  - Program objectives, 40, 70
  - Program structure, 41
  - Technology improvements, 69
- Baseline terminal defense system (BTDS), 85
- Budget request, 1
- Civil defense precautions, 95
- Common missile theory, 87, 101
- Continuous patrol aircraft (CPA), 45, 59, 97
- D-5 system, 37, 100
- Deep basing, 15, 61, 98
- Defendable deceptive basing, 46, 64
- Development program, 3
- Funding for fiscal 1983, breakdown, 2
  - Cost implications, 78
  - Military construction, 18
  - Procurement, 18
  - Research and development, 18
- High relief basing plan, 66
- Highway transport, road upgrading to handle, 7
- ICBM's, characteristics of, 96
- Interim basing, option for, 22, 25, 28
- LOADS system, 38
  - Effectiveness, 94
  - Radar data base for, 71
- Long-term basing option, 23, 25
- Mesa basing, 62
- Minuteman missile:
  - Modifications, 74
  - Retention, impact of, 27
  - Short-term survivability of, 75
  - Testing, 35
  - Vertical MPS basing of, 76
- Missile alternatives, 80
- MK-12A production line, 83

Page
MM III missile force 81
Multiple protective shelter (MPS) 25, 31
Near term plan 5, 56
Permanent basing mode 93
Phased modernization plan 21
Program costs 12
R&D test missiles 27, 50
Safeguard missile system 34
  Site utilization 77
Silo basing 6, 21, 56
  Canisterized missile system 11
  GAO report on 82
  Hardening 8, 28, 57
  Influence of 88
  Infrastructure support 58
  North Dakota, ABM system in 33
  Program costs 12, 58
  Shock isolation system 10
  Shock suppression capability 33
  Timetable for 13
  Upgrade program 9
Strategic Arms Reduction Talks (START) 92
Survivable optical forward acquisition system (SOFAS) 78
Soviet Union:
  Bomber production 92
  ICBM production 91
  R&D spending of 91
  SLBM production 91
  Strategic offensive power, investment in 90
  TRIAD concept 20, 30, 36, 79

NAVY SHIPBUILDING AND OVERHAULS

Active fleet concentrations, by geographical area 439
Active ship status 408
Air cushion vehicles 539
Aircraft carriers:
  Battle groups 486, 505
  Construction profile 504
  Force levels 453
  Procurement 502
  Survivability 480
Attack submarine forces 453
Battleforce program 420
Battleship operating costs 497, 511, 547
Budget request 407, 456
  SCN, chart on 458
Business management, economies and efficiencies in 428
Buy American Act 473
CG–51 Aegis cruiser 543
Competition 410
Contract design development funding 513
Contracting philosophy 411, 516, 549
Convert and charter program 512
Cost growth/escalation 467
CVN schedule comparison 503
DDG 51 cruiser/destroyer force levels 540, 544
Defense planning and mobilization 468
Depot operations improvement program 436
Destroyer construction costs 415
Diesel submarine proposal 510
Electric Boat, submarine costs at 495, 509
Employment and capacity, impact on 413
Engine modifications 477
European shipbuilding, U.S. contracts on 469
Falkland Islands dispute 414
Fast logistic ship program (TAKRX) 426

Page
FFG–7 class frigate 544
5–year program 410, 512
Fleet modernization program 437
Fleet oilers 506, 518, 537, 551
Force building and modernization program 433
Force planning 451
Future naval ship maintenance and modernization industry issues 445
History and program 417
Hospital ship program (TAHX) 424
Independence SLEP 539
Industrial base aspects 412
LAMPS MK III weapon system 506
Logistic support forces 456
Manufacturing technology 467, 535
Maritime pre-positioning ships (MPS) program 422
Mine countermeasure ship construction program 534
Missouri reactivation 496
MK 92 fire control system 545
Multiyear procurement 410
Naval shipyard apprentice enrollment 526
Navy TOA 428
New Jersey reactivation 487
Nimitz carrier overhaul 500, 522
Nuclear ships program 498, 533
OHIO class submarine 537
Operation and maintenance schedule 436
Penn shipyard 469
Performance evaluation 440
POM 1984 development 543
Port engineer concept 548
Private sector, increased repair and overhaul in 414, 432, 434, 442, 482
Private shipyard overhauls 523, 527
Program objectives 418
Public shipyard personnel 523
Ready Reserve Fleet (RRF) 426
Reappropriation of fiscal 1978 program 538
Salvage ships 519
Saratoga SLEP 470, 474
Sea-based air power 449
Seafire program 542
Sealift programs 425, 512
Ship alteration slippages 499, 516, 531
Shipbuilding and conversion Navy (SCN), ship and funding requirement:
    AEGIS cruiser CG–47 461
    Amphibious assault ship LHD–1 463
    Battleship reactivation BB(R) 461
Carrier service life extension program (CV–SLEP) 460
    Craft vessels 466
    Fast Logistic ship TAKRX 466
    Fleet oiler—TAO 465
    Guided missile frigate FFG–7 462
    Hospital ship—TAH 465
    Landing ship dock LSD–41 462
    Mine countermeasure ship MCM 463
    Nuclear attack submarine SSN–688 459
    Nuclear powered aircraft carrier CVN 459
    Ocean surveillance ship AGOS 464
    Other shipbuilding 467
    Salvage ship—ARS 464
    Trident—SSBN 458
Ship design 467
Ship maintenance and modernization performance improvement initiatives 443, 520
Ship overhaul:
    Backlog 412, 549
    Contract growth 515
    Cost overruns 488

Ship overhaul—Continued Page
  Management 515
  Program 435, 438, 484
  Scheduled starts 441
600-ship Navy, long-term costs of 498
SSN award 509
Strategic airlift 408
Strategic mobility 422
Strategic sealift support program 426
Strategic submarine forces 452
Subcontractor awards 529
Supply center inventories 485
Supply operations 501, 533
Surface combatant forces 454
Surface Effect Ships 514
Surface ship vulnerability 489
Tanker replacement program 472, 477
T-5 replacement tanker program 546
Ticonderoga trials 408
TOA readiness and sustainability 409
Trident delivery schedules 492, 508, 510, 534
U.S. defense industrial base 478
U.S. shipbuilding yards 431

SPACE SYSTEMS

Command, Control and Communications [C ³] and Spaced-Based Programs

Space programs:
  Activities 324
  Antisatellite activity 348
  Budget request for 291, 293
  Centaur rocket system 339, 390
  Consolidated Space Operations Center 353
  Defense of 293
  Defense Satellite Communications System (DSCS) 366
  Defense Space Policy Study 331
  Fifth orbiter purchase 330
  GPS production satellite 354
  High energy upper stage development 337
  High technology, research in 292
  Management of 295
  MILSTAR program (*See also* Strategic C ³) 336, 348, 352, 370, 387, 400
  Multiyear fixed price production contract 354
  National space policy 328, 333
  NAVSTAR GPS 357, 361, 387
  Orbiter needs 329
  Organizational chart 325, 327
  Policy development 330
  Research programs 293, 295
  SP-100 program 338
  Satellite communications technology 349
  Satellite survivability 396
  Soviet activities in space 328
  Space policy review 293
  Space Shuttle:
    Alternative recovery sites for 357
    Annual launch rate for 333
    DOD program 360
    Northrup strip availability 392
    Operation, cost of 334
    Pricing policy for 334
  Vandenberg AFB, reduction in payload launches from 335, 360
  White Sands recovery site 358
  Working level problems 325
Strategic C³:
  Airborne laser program 344, 393

Strategic C^3—Continued — Page
- Air launch control system (ALCS) phase III 386
- ASAT acceleration 380, 397
- Ballistic missile early warning system (BMEWS) 372
- Blue-green lasers 322, 381
- Budget request for 291, 299, 307, 371, 401
- China Lake, airborne laser tests at 394
- Command and decision initiatives 310
- Communications and control system 308, 311
- DARPA Triad program 398
- Deterrent posture 299
- DEW line radar 376
- DOD activities 301
- E-4B program 385
- Engineering development programs 323
- Foreign computer competition 350
- Global positioning system reprograming 317
- GPS-IONDS 318, 376
- High energy laser program 342, 389, 393
- Laser communications 321
- Military communications satellite area 314
- MILSTAR satellite system 315, 400
- Mission area structure 304, 313
- Mobile Command Centers 377
- Norad system 374
- North American air defense plan 378
- Objectives of 299, 306
- Operational satellites procurement 319
- Over-the-Horizon (OTH) radar deployment 321, 375
- Particle beam technology:
  - Air Force weapons lab and Sandia lab cooperative effort 347
  - Los Alamos laboratory research efforts in 346
- PAVE PAWS SLBM 372, 401
- PMALS project 380
- Priorities 305
- Programs 300, 303, 372
- Resource area 312
- Short wavelength laser technology 345
- Small laser development 397
- Soviet laser capability 394
- Space laser/airborne laser programs 342
- Spaced-based laser 341, 388, 394
- Strategic Air Command Digital Network (SACDIN) 377
- Strategic weapons employment and acquisition master plan 320, 374
- Submarine laser communication 323, 382
- Warning and attack assessment initiatives 309
- Warning system 307
- Worldwide Military Command and Control System (WWMCCS) 373

U.S. GLOBAL MILITARY COMMITMENTS

Air National Guard, transfer of Air Force personnel to 279

Allies:
- Advantage to U.S. of 251
- Contributions by 247, 286
- Personnel strength reductions 247
- Reinforcements 268
- Total defense spending 267
- U.S. relationship with 246

British:
- Rapier deal with 248
- Burdensharing 252, 268
- Defense expenditures by U.S., economic impact of 181

East Asia and the Pacific:
- Natural resources, U.S. dependence on 110
- 5-year defense plan 109
- Flexible forces strategy 113, 121

East Asia and the Pacific—Continued

Page

- Force level maintenance, cost of 157
- Global commitments 106, 108
- Conventional warfare 148
- Free world defense, U.S. role in 145
- Problems, recommendations for solving 111
- Host nation support (*See also* NATO) 255, 284

Indian Ocean and Mediterranean:

- Involvement, 5-year cost of 122

Japan:

- Armaments program 240
- Combat readiness of 242
- Defense buildup, policy implications of 242
- Defense of Japan White Paper, 1981 240
- Defense spending by 183, 185, 196, 239, 249
- Far East defense commitment in 128, 131, 156, 175, 228
- Security relationship with United States 239
- Trade consultatives 245
- Trade issues, Japanese response to 243
- U.S. reciprocal defense treaty with 244

Korea, retention of U.S. forces in 127

Master restationing plan 117, 232, 234, 274, 285

Mutual defense changes 183, 186

Naval forces:

- Carrier flexibility 162
- Battle groups, cost of 170
- Nuclear war, value of in 173
- Deployments 161
- Mothballed carriers 171
- Nimitz-class fleet, alternatives to 171
- Squadron basis deployment 171
- Strengths 160

1990 VISTA Study of the Future of the Army and Air National Guard 259

North Atlantic Treaty Organization (NATO):

- Air base defense 276
- Allies, contributions by 210, 223, 237
- American sector, strength of in 133, 202, 227
- AWACS procurement 282
- Colocating bases 231, 257, 275
- Conventional forces, maintenance of 201
- Détente theory 204, 237
- Force level determinants in 116, 125, 136, 144, 158, 233
- Force reduction 218
- French withdrawal from effect of 216
- Germany:
  - Border position's defended by 236
  - Brigade support from 235
  - Budget constraints 269
  - Nuclear force deployment support by 236
- Host nation support agreement 208, 215, 226, 255, 272, 284
- Infrastructure program 209, 230, 256, 281
- Modernization process 225
- Prepositioned equipment 225
- Procurement exchange 287
- Restationing costs 222, 232
- Short rotation tours in 132
- Strategy costs 221
- Summit conference, allied commitments made at 127
- Support costs 117, 119, 188, 217, 220
- Tactical nuclear weapons defense 230
- Tripwire concept 226
- Troop strengths in 113, 115, 118, 156, 212, 218, 224, 248, 270
- Troop withdrawals from 276
- U.S. commitment to 110, 135, 203, 216
- U.S. defense commitment to, costs of 120
- West Germany, contribution by 203

North Korea:

- Chinese role in 130

North Korea—Continued

Page

- Military threat from 130

Norway prepositioning 198

Overseas dependents, cost of 117

Pershing II missile, sale of to West Germany 198

Persian Gulf Area:

- Allied shared burden in 113, 196
- U.S. strategy in 112

Rapid Deployment Force:

- Cost of maintaining 119
- Organizational funding for 106

Southwest Asia and Africa:

- Allied cooperation in 190
- Defense of, rationale for 189
- Economic aid disbursements, by country 193–195
- Economic and security assistance in 191
- Joint military commissions 197
- Minerals production, value of 110
- Oil, Europe and Japan dependence on (*See also* Persian Gulf Area) 114

Soviet Union:

- Conventional force expenditure 288
- Gas pipeline, European nations commitment to 123, 283
- Military buildup 108
- Military strength versus United States 159
- Tank capability 228
- Trade with United States 182
- Worldwide activities of 111

Strategic weapons 159

U.S. military burden abroad 105

- Alternatives to 146, 151

Weapons co-production 186

Western Hemisphere:

- Caribbean, U.S. commitment in 122
- Soviet presence in 110

Western Pacific and Northeast Asia (*See also* Japan):

- Military force deployment, cost of 122